NEWPORT PAGNELL

Transport Assessment

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Executive Summary

RPS has been appointed by Bloor Homes Limited to provide transportation and highways advice in relation to the proposed development at Willen Road, Newport Pagnell. The development site, is referred to as 'the Site and Bloor Homes Site hereon in. The Site forms part of the wider Milton Keynes East Strategic Urban Extension (MKE SUE). This Transport Assessment (TA) provides an assessment of the transportation impacts of the Bloor Homes Site on the local highway and transport networks.

Policy Context

This TA reviews the key national and local policy and guidance documents. The Bloor Homes Site will be developed in accordance with the relevant policy and best practice guidance documents where appropriate.

In particular, the development proposals have been considered against the NPPF and MKC's relevant local policy documents.

At a local level, the Bloor Homes Site is identified in the Plan:MK as part of the MKE SUE located at the north-western corner of the wider SD12 Allocation. The Bloor Homes Site forms part of the wider MKE SUE masterplan, which includes:

- 5,750 homes (with residential uplift);
- Circa 105Ha of employment;
- A secondary school;
- Up to 4 primary schools (assuming one is located within the Bloor land);
- A community hub / centre including healthcare, retail and leisure facilities; and
- Community Space / Open Space / Burial Space Also included in the allocation.

The key MKE proposals to be delivered, as set out in the Development Framework, which are relevant to the Bloor Homes Site are:

- A new road bridge over the M1 providing an improved link to Central MK and the urban area of MK;
- Reducing pressure on the key M1 road crossings of the A422, Willen Road and M1 J14;
- Safeguarded route for a fast mass transit route;
- Pedestrian / cycle connections across the M1 and A422 as well as the new infrastructure itself;
- An outer road to allow through traffic to move through the MKE site without conflicting with areas of housing and the people-centric places within the site;
- Willen Road to be retained and upgraded to a grid road; and
- Downgrading of part of the A509 London Road through the site to avoid it becoming a through route.

The proposed layout of the Site has been carefully designed to fully integrate and connect well within the surrounding area and proposed Milton Keynes East grid road and MKE SUE development, should this be implemented in the future. The Site will be linked to the wider MKE SUE allocation providing access for all modes to maximise access, travel by sustainable modes and in a safe manner, with consideration given to redways, leisure routes, green corridors, Public Rights of Way (PRoW) and bridleways.

The internal road layout will be designed in accordance with MK Design Guidance and the MKE SUE SPD. They will be permeable to allow easy and safe access for pedestrians and cyclists, and for motorised vehicles.

Bloor Homes proposals take account of the relevant policies within the Plan:MK and others such as MKC's, Parking Standards SPD (January 2016).

The public transport strategy for the Bloor Homes Site aligns with MKC's aspirations as demonstrated by the public transport proposals.

The submission of a Framework Travel Plan as part of this planning application demonstrates the Applicant's commitment to encourage sustainable travel behaviour to, from and within the Site, in accordance with policy requirements.

Existing Conditions

This TA reviews the existing site and location in relation to the local transport network, local facilities such as employment areas, schools, entertainment and recreational uses and transport links. Details of the local traffic conditions, travel to work characteristics of residents, personal injury accident data and details of the committed developments are also considered.

The Site is located at the north-western corner of the wider MKE SUE. The existing site mostly consists of agricultural land, a former quarry and some residential uses. The Site is bound by the A422 Monks Way to the north, Willen Road to the west and agricultural land to the east and south of the Site. In the wider context, the Site is located at the north-western corner of the wider SD12 allocation to the east of the M1 motorway, south of Newport Pagnell. The M1 motorway runs on a broadly southeast / northwest alignment to the south of the Site and the A509 is located further east of the Site and has a north / south alignment.

The Site is well connected to the local highway network (via Willen Road (S)) within Milton Keynes, Newport Pagnell and to the strategic road network via the M1 junction 14.

Willen Road (S) is a two-lane single carriageway and forms the western boundary to the Site. There are no waiting restrictions on Willen Road and the road is classified as a district distributor road in accordance with MKC's A Highway Guide for Milton Keynes (September 2018). Footways are not provided on either side of the road. Street lighting is present on both sides of the road.

The Site is highly accessible by bus with two bus stops located close to the Site, along Willen Road (S). Milton Keynes Central National Rail Station is accessible via the bus routes that operate along Willen Road (S).

A range of key facilities are located within a reasonable distance of the Site and the existing cycleways and footpaths provide opportunities to access these facilities.

The Milton Keynes Redway Super Route H4 connects the Site from the Tongwell Roundabout, to the south of the Site, along Dansteed Way. This main route provides links to other redway and traffic-free/quiet routes across Milton Keynes. There are also redway and traffic-free/quiet routes to the north of the Site, which provide connections to Newport Pagnell.

The detailed review of Personal Injury Access data suggests that there are no existing safety issues on the local highway network.

Development Proposals

The transport proposals have been designed to ensure safe access to the Site. The development proposals comprise:

> **"Outline planning application with all matters reserved except for means of access in relation to highway access from Willen Road and pedestrian/cycle access in relation to the crossing of the A422, for the demolition of the existing structures on site and the creation of a residential development of up to 800 dwellings comprising affordable housing, a primary school, local centre, public open space, red ways, sustainable urban drainage systems and all associated works."**

In detail, the development proposals for the Bloor Homes Site comprise the provision of:

1. Up to 800 residential dwellings;
2. Primary school;
3. Local centre;
4. Sports pitches on land to the north of the A422;
5. Car and cycle parking provision;
6. Disabled and powered two-wheeler parking provision;
7. Two new access junctions from Willen Road;
8. Local Distributor Road connecting Willen Road to the west to the wider MKE SUE and new grid road to the east (Southern Access Road);
9. Pedestrian / cycle bridge over the A422;
10. Potential pedestrian crossing on the northern arm of the Marsh End Roundabout;
11. New redway on the eastern side of Willen Road; and
12. On site delivery and servicing.

Bloor Homes proposals have been carefully designed to:

- accord with MKC's requirements / aspirations for the MKE SUE, as set out in the MKE SUE SPD;
- integrate with the proposed improvements for the proposed Caldecote Farm employment site;
- integrate with the infrastructure proposals associated with the wider MKE SUE allocation; and
- integrate with the local transport and highway networks.

Proposed Vehicular Access / Highways Improvements

Based on the proposed scale of the Bloor Homes development, the proposals comprise the provision of two new vehicular accesses.

The proposed northern access will be located directly opposite the proposed signal-controlled access to the Caldecote Farm employment site; as such the northern access has been designed to fully integrate with the employment site access, in the form of a new signal-controlled crossroad junction. The signal-controlled junction arrangement will include at-grade crossing facilities to facilitate pedestrian / cycle movements.

The proposed southern access will be located approximately 190 metres to the south of the northern access on the eastern side of Willen Road. This will be in the form of a three-armed signal-controlled junction and will include at-grade crossing facilities to facilitate pedestrian / cycle movements.

The Bloor Homes proposals incorporate widening Willen Road to a two-lane dual carriageway in conjunction with the Caldecote Farm employment site, running south towards the Tongwell Roundabout, tapering down to a two-way single carriageway on the approach to the M1 overbridge. This accords with the aspirations of the MKE SPD to upgrade Willen Road to grid road status.

The proposals incorporate the delivery of a Local Distributor Road connecting Willen Road in the west via the southern access to the wider MKE SUE area to the east. The Southern Access Road will connect directly into the new grid road / MRT / redway that will be delivered as part of the wider MKE SUE infrastructure work.

The proposed northern and southern access junctions have been designed to accommodate the manoeuvrability requirements of a refuse vehicle. The internal roads of the proposed development will be designed to accommodate the required servicing and delivery vehicles and buses as appropriate.

These improvements have been agreed in principle by MKC Highways, subject to detailed junction capacity assessments.

Pedestrian and Cycle Access

The masterplan has been designed to maximise travel on foot and by bicycle by ensuring permeability through the Site and connectivity with the surrounding areas. The existing walking and cycling links within the local area have been reviewed (including footpaths, bridleways, PRoWs, cycleways, redways and crossing points) in parallel to the development proposals to identify opportunities to improve existing connections and provide new ones. The walking / cycling proposals have also taken account of the MKE SUE proposals and the proposals for committed and proposed developments (such as Tickford Fields and the Caldecote Farm employment site) to ensure any new connections are seamless and fully integrated.

The proposals incorporate significant pedestrian / cycle enhancements ensuring that the development will have good connectivity with the surrounding areas, in accordance with NPPF Policy 112(a) and Policies CT1 (Sustainable Transport Network), CT2 (Movement and Access) and CT3 (Walking and Cycling) of Plan: MK and the aspiration of the MKE SUE SPD.

These pedestrian and cyclist enhancements include:

- The Willen Road northern and southern accesses with full crossing facilities;
- Willen Road redways;
- An internal route connecting the Site with the redway and Toucan crossing at Marsh End Roundabout, to be jointly delivered with the Caldecote Farm employment site;
- To the north of the Site, a new pedestrian and cyclist bridge over the A422 Monks Way (see BPI 5 on **Figure 5.1** attached to this report);

- To the south of the Site a connection to the wider MKE SUE;
- An internal connection to existing Footpath FP014; and
- An internal Greenway providing a north to south pedestrian and cyclist link.

Public Transport Strategy

The public transport strategy for the Site has been designed in accordance with MKC's requirements / aspirations, to integrate with proposals / developments coming forward including the MKE development and other proposed developments (i.e., the wider MKE SUE and Caldecote Farm employment site). This ensures the Site is fully integrated with its surroundings.

A number of public transport improvements are proposed for the Bloor Homes Site, in order to support the public transport strategy. The proposals cater for the future needs of the Site users to encourage sustainable travel by this mode and include:

- **Design** - Appropriate bus infrastructure will be incorporated within the design of the development; the internal road network has been designed to accommodate bus routes and bus stops;
- Vehicular link to be provided to the southeast of the Site to connect with the wider MKE and the new grid road / potential future MRT;
- Information will be made easily available to help promote the use of public transport within the local community;
- Journeys by public transport will be strongly promoted and encouraged (to be delivered through the Framework Travel Plan); and
- Provision of three new bus stops within the Bloor Homes Site, with the exact locations to be determined through the reserved matters applications.

Parking Provision

Parking provision for all use classes of the development will be provided in accordance with the standards outlined in Milton Keynes Council, Parking Standards SPD (January 2016). Specific details will be provided within the reserved matters applications.

Parking Management Strategy

The balance between a suitable level of parking provision for residents, (without promoting car use), whilst offering realistic alternatives to private vehicle use through walking, cycling and public transport options will be considered.

Main streets will be kept free of parking as appropriate through the implementation of waiting restrictions, whilst the implementation of traffic calming measures will promote lower speeds and pedestrian and cycle safety, providing benefits from less air and noise pollution.

The design and management of parking spaces for the development site will be detailed in any detailed reserved matters planning applications that come forward. The scheme will be designed to allow full access for emergency vehicles.

Servicing Management Strategy

Sufficient servicing and delivery facilities will be provided for the development in accordance with MKC's guidance. If required, it is expected that a Servicing Management Plan (SMP) will be conditioned to be provided as part of any future detailed reserved matters applications.

The residential houses will have their refuse collected from the new internal streets, with access from the main vehicular road through the Site, via Willen Road. Residential houses will be responsible for transporting their recycling and waste to the kerb. Refuse vehicle tracking will be provided as part of any reserved matters applications.

It is expected that any future SMP would allow changes to be made over time to accommodate the changing needs of the development.

Framework Travel Plan (FTP)

A separate FTP report is submitted as part of this planning application.

The FTP is intended to provide an overarching site-wide framework for the promotion of travel by sustainable modes for the site and would seek to raise awareness amongst residents/users of the accessibility of the Site via sustainable travel modes, as well as the proximity of local services and amenities, which could be conveniently accessed on foot / cycle. The FTP incorporates key objectives into the delivery of site-specific principles and initiatives.

Trip Generation

The residential trip generation has been calculated within the TA with an assessment of the partial build-out to coincide with the HIF bid in 2031 (650 units) and anticipated full build-out in 2033 (800 units). Whilst the exact details of the primary school and local centre are not known at this stage in terms of size, it is considered that all the primary school pupils generated by the residential development could be accommodated within a 2FE primary school and the local centre will be provided for residents of the Site. With the excellent active travel and bus connectivity, it is highly likely that most school / local centre trips will be by sustainable modes with very few home-school // local centre (primary) trips by private car.

The additional traffic on the local network associated with the Tickford Fields committed development and proposed Caldecote Farm employment development, located close to the Site, are included within the assessment. Service vehicle trip generation has been estimated for the development proposals and is included for information purposes.

Traffic and Highway Impact Assessment

The potential traffic and highway impacts of the development proposals on the local highway network in the vicinity of the Site are assessed in terms of traffic flow changes and junction analysis for the weekday and morning peak hours for the 2021 Baseline year, 2031 / 2033 without and with Development and 2041 (for M1 and Northfield Roundabout only) with and without development.

The model results show that there are existing capacity issues at a few junctions across the local highway network particularly at Marsh End Roundabout, Tickford Roundabout, Northfield Roundabout and M1 J14.

The greatest impact on the immediate local highway network because of the Bloor Homes development proposals will be at the Marsh End Roundabout; however, the jointly designed highway improvements, that will be in place before this Site, will help mitigate against the impacts at this junction. These include upgrades to Marsh End Roundabout (signalisation, widening, pedestrian crossing facilities) and improvements to Willen Road (S), will improve the operation of Marsh End Roundabout.

It can therefore be concluded that the proposed Bloor Homes development will not have a 'severe' impact on the operation of Marsh End Roundabout in NPPF terms (paragraph 111).

The development impacts at the other junctions assessed across the wider highway network are negligible and this is reflected in the results of the detailed junction assessments, with minor improvements possible at the Tongwell Roundabout, should this be deemed necessary, to mitigate the short-term impacts of the development at this junction before the strategic HIF infrastructure improvements come on-line.

Notably, the modelling assessments included within this report do not include the wider MKE proposals (such as the new Southern Link Road and M1 bridge), which will undoubtedly have a beneficial effect in the operation of the local highway network because of traffic re-routing.

It should be noted that the MKE TA report states that "all highway impacts of the wider MKE allocation, associated with the new development, can be mitigated accordingly through the introduction of new infrastructure, improvements to existing infrastructure (delivered through financial contributions via the MK Tariff) and management plans as appropriate". Furthermore, the MKE assessment includes a quantum uplift in the allocation, which has been applied within the modelling. This provides flexibility in the allocation in the event of any changes to the sizes of the land parcels (in terms of the number of residential units etc). Therefore, the transport impacts are likely to be over-estimated, thus representing a robust, worst-case scenario.

Two sensitivity assessments have also been assessed including:

13. 10% Modal Shift – a reduction in car driver vehicle trips of 7.28%, which has been transferred proportionately to sustainable modes. This scenario is anticipated to be the more likely scenario for the development in the short term, as a result of the sustainable transport infrastructure, mix of land uses and Travel Plan that will be delivered in conjunction with the development, reducing the need to travel and providing real choices for travel by sustainable modes; and
14. MKE 2031 Vehicle Trip Rates – the application of the agreed MKE 2031 vehicle trips to the proposed 800 residential dwellings, reflecting the significant strategic HIF transport and highway infrastructure improvements. It is anticipated that this scenario will arise in the longer term, once the wider infrastructure improvements are implemented.

The sensitivity tests have been assessed for the 2033 / 2041 (where relevant) without and with Development.

Whilst the overall traffic flow increases at the junctions assessed are lower than the main impact assessment, the greatest impact in terms of traffic flow increases is at Marsh End Roundabout. Full junction assessments have been carried out for the identified junctions using the relevant modelling software. As mentioned earlier, there are existing capacity issues at a few junctions across the local highway network particularly at Marsh End Roundabout, Tickford Roundabout, Northfield Roundabout and M1 J14.

As the flows assessed in this section are lower than the 'worst-case' assessment in Section 7, it is considered that the impacts arising from the 10% MS and MKE development scenarios can be mitigated at

the Marsh End Roundabout. At the Tongwell Roundabout an improvement at the Willen Road (N) arm would satisfactorily address the impact of the Bloor Homes development.

The development impacts at the other junctions assessed across the wider highway network are negligible and this is reflected in the results of the detailed junction assessments.

It is concluded that the development impacts arising from the 10% MS and MKE scenarios will not have a severe impact on the operation of the local highway network in NPPF terms.

In conclusion, the TA establishes that the land to the east of Willen Road, Newport Pagnell, in its current form, is acceptable to serve the proposed development of up to 800 residential dwellings, a primary school, local centre and sports pitches.

It has also been concluded that the impact of the proposed development of would not have a severe residual impact on the local highway network in accordance with the requirements of the NPPF. Furthermore, the development will provide a safe means of access to the Site.

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1 INTRODUCTION

Background

1.1 This Transport Assessment (TA) report has been prepared by RPS on behalf of Bloor Homes Limited (BHL) to support the Outline planning application for the proposed development at Willen Road, Newport Pagnell. The development site, referred to as "the Site" and "Bloor Homes Site", forms part of the wider Milton Keynes East Strategic Urban Extension (MKE SUE).

1.2 The description of development is as follows:

> **"Outline planning application with all matters reserved except for means of access in relation to highway access from Willen Road and pedestrian/cycle access in relation to the crossing of the A422, for the demolition of the existing structures on site and the creation of a residential development of up to 800 dwellings comprising affordable housing, a primary school, local centre, public open space, red ways, sustainable urban drainage systems and all associated works."**

1.3 The local planning authority and highway authority is Milton Keynes Council (MKC). The highway authority for the M1 motorway is National Highways (formerly Highways England).

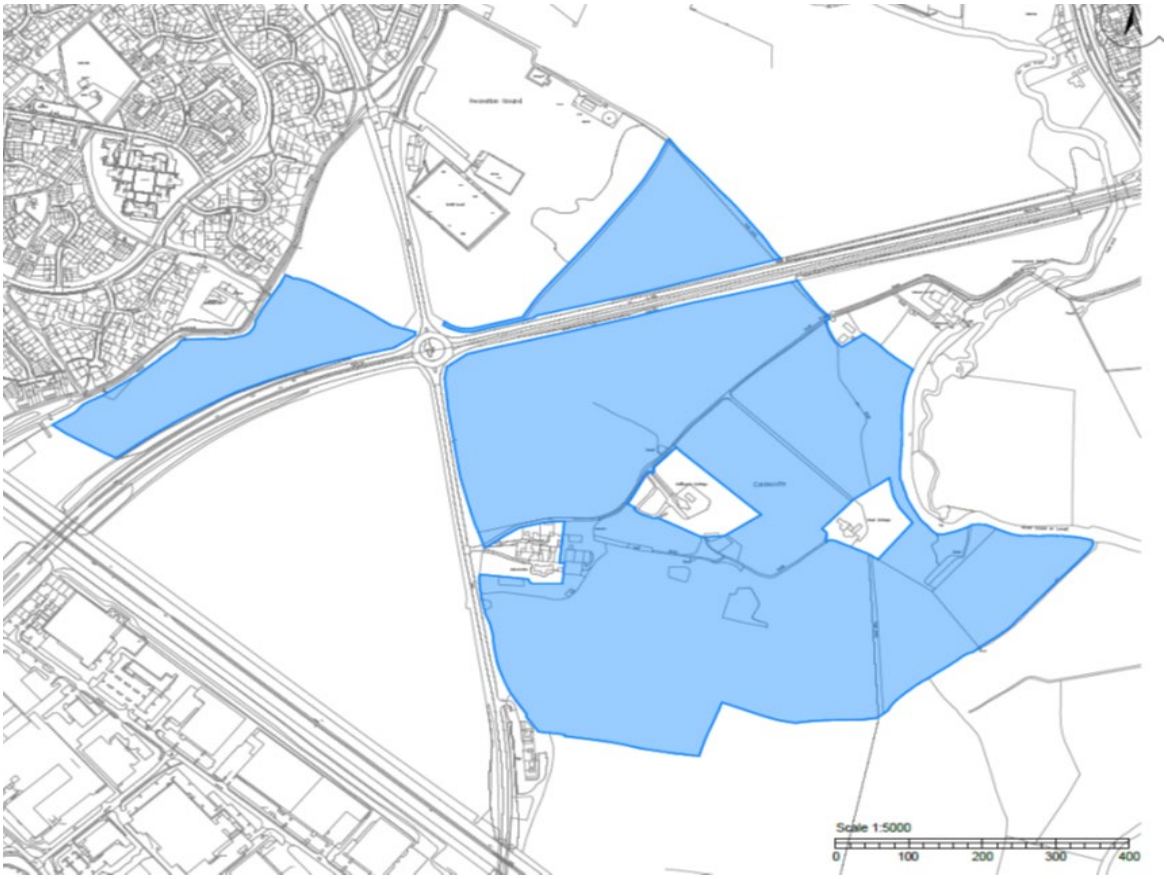
1.4 This TA has been prepared in accordance with national and local policy and best practice guidance and following pre-application discussions with MKC.

The Site

1.5 The Site is located at Willen Road, Newport Pagnell. The existing context plan (see **Appendix 1**) illustrates the location of the site.

1.6 **Figure 1.1** shows the extent of land controlled by Bloor Homes, coloured in light blue. This illustrates that the Site consists of three parcels of land, two small parcels to the north of the A422, and one to the south. The southern parcel of land is where the new development will be located and is bound by the A422 to the north, the River Ouzel to the east, agricultural land to the south and Willen Road to the west. The M1 motorway runs on a broadly southeast / northwest alignment further to the south of the Site.

Figure 1.1: Plan Detailing Bloor Homes Controlled Land



SD12 Allocation

1.7 In terms of the MKE SUE, the Site is located to the north-western corner of the SD12 allocation, to the east of the M1 motorway, south of Newport Pagnell. **Figure 1.2** illustrates the boundary of the allocation and the MKE SUE Development Framework Area (DFA).

1.8 A summary of the proposals for MKE SUE will be expected to include the following:

1. **"Delivery of around 5,000 new homes, including at least 1,475 homes within the plan period, providing a range of sizes, types and tenures, including affordable housing, in accordance with other policies in the Plan.**
2. **Around 105 hectares of land for a mix of employment uses, complementing the role and function of CMK.**
3. **Associated infrastructure including primary and secondary education, community facilities, health, retail and local services and a hotel. The development should comprise at least one district centre and/or local centre(s), of scale commensurate to the needs of the new community and that would not adversely affect the viability and vitality of Newport Pagnell district centre, with a co-location of key facilities."**

1.9 Further details of the MKE SUE proposals are included in **Section 3** of this report. The Bloor Homes proposals, as detailed in paragraph 1.2, form part of the MKE SUE.

Figure 1.2: MKE SUE Development Framework Area, Local Plan Policy SD12 Allocation
(Extract MKE SPD, MKC)

Development Proposals

1.10 The Bloor Homes landholding will accommodate up to 800 residential dwellings, a local centre, primary school and sports pitches.

1.11 The proposed access arrangements for the Site have been designed to be consistent with the access strategy for the proposed employment site at Caldecote Farm located on the western side of Willen Road (Application reference: 21/02440/OUTEIS). The proposed layout of the Site has also been carefully designed to fully integrate with the wider MKE SUE allocation.

1.12 Vehicular access to the development site will initially be via two new entrances located off Willen Road, with a connection to the wider MKE area to the southeast of the Site as that is developed by others.

1.13 The illustrative Masterplan is included in **Appendix 2**.

Neighbouring Developments

1.14 A list of developments, and current planning status, within the vicinity of the Site is provided below:

15. Tickford Fields, application reference 20/00133/OUTEIS – submitted on 20 January 2020 and approved on 28 May 2021;

16. The approved development comprises the development of up to 930 residential dwellings, primary school, local centre, opens pace, sports pitches, play areas, pavilion / wellbeing centre and other associated works at Tickford Fields Farm, North Crawley Road, Newport Pagnell, MK16 9HG.

1.15 Caldecote Farm, application reference 21/02440/OUTEIS – submitted on 12 August 2021 and is awaiting determination.

1.16 Newlands Developments Limited (Newlands) development proposal is for two storage and distribution units with a total of 78,429 square metres (GIA), with associated access, car parking, servicing, landscaping, earthworks, on and off-site drainage and off-site highway works.

1.17 MKE – application reference 21/00999/OUTEIS – submitted in March / April 2021. Application to awaiting determination.

> **"(i) outline element (with all matters reserved) for a large-scale mixed-use urban extension (creating a new community) comprising: residential development; employment including business, general industry and storage/distribution uses; a secondary school and primary schools; a community hub containing a range of commercial and community uses; a new linear park along the River Ouzel corridor; open space and linked amenities; new redways, access roads and associated highways improvements; associated infrastructure works; demolition of existing structures; and**
>
> **(ii) detailed element for strategic highway and multi-modal transport infrastructure, including: new road and redway extensions; a new bridge over the M1 motorway; a new bridge over the River Ouzel; works to the Tongwell Street corridor between Tongwell roundabout and Pineham roundabout including new bridge over the River Ouzel; alignment alterations to A509 and Newport Road; and associated utilities, earthworks and drainage works."**

1.18 The traffic generated by the committed developments 1 (Tickford Fields) and 2 (Caldecote Farm). have been included within this assessment. This assessment does not include the impacts of the wider MKE development as agreed with MKC, with the Bloor Homes development being considered within the wider MKE planning application. Further details are included in **Sections 4** and **5** of this report.

Pre-Application Consultation

1.19 Pre-Application consultation with MKC Highways has been undertaken.

1.20 Technical Notes have been issued to MKC as part of the pre-application process in order to agree various aspects of the TA work including:

- **Transport Assessment Scope (dated 17 March 2020):** details the proposed scope of works for the TA. Meetings were held with MKC to discuss and agree the scope of works including:

- Pre-app Meeting with MKC on 19 March 2020 - MKC scoping response received 6 April 2021 and Meeting Minutes issued 08 April 2020; and
- Second pre-application meeting 20 April 2021 - meeting minutes issued on 13 May 2020.

- **Trip Generation Technical Note (dated 17 March 2021):** to establish an appropriate baseline modal split for the residential development to help inform the Transport Assessment (TA) and highway capacity analyses. Agreed by MKC on 26 April 2021;
- **Access Strategy Technical Note (dated 12 May 2021):** sets out the proposed access strategy for the Site. Accepted in principle by Stirling Maynard Transportation, on behalf of MKC in email dated 27 July 2021; and
- **Public Transport Strategy** – proposed public transport strategy agreed by email correspondence (dated 22/07/21) with MKC.

1.21 Copies of relevant correspondence is included at **Appendix 3**.

Report Structure

1.22 This TA is structured as follows:

- **Section 2: Baseline Transport Conditions:** describes the local transport provision and accessibility of the Site, current traffic conditions and existing travel behaviour;
- **Section 3: Transport Policy and Guidance:** reviews relevant national and local policy and best practice guidance;
- **Section 4: Milton Keynes East Transport Assessment Review:** considers the relevant sections for the Site of the Transport Assessment report prepared by WSP, which supports planning application 21/00999/OUTEIS;
- **Section 5: Development Proposals:** describes the development proposals including the accommodation, access arrangements, servicing / parking provision and any transport interventions;
- **Section 6: Trip Analysis:** sets out the forecast mode share, trip generation, trip distribution and assignment of the vehicle trips resulting from the development proposals;
- **Section 7: Traffic and Highway Assessment:** assesses the traffic and highway impacts of the development proposals including details of the assessment scenarios, growth factors, traffic flow changes and junction modelling results;
- **Section 8: Sensitivity Assessment:** assesses the traffic and highway impacts of the agreed sensitivity assessment scenarios;
- **Section 9: Sustainable Modes Assessment:** assesses the impact of the development proposals on sustainable modes including on foot, by cycle and public transport;
- **Section 10: Public Transport Strategy –** sets out the proposed public transport strategy for the Site;
- **Section 11: Mitigation Measures** – details the mitigation measures to minimise the transport impacts of the development proposals; and
- **Section 12: Summary and Conclusions:** summarises the key elements of the TA and provides a conclusion the TA report.

1.23 A separate Framework Travel Plan (FTP) has been prepared and is complementary to this TA. The main objective of the FTP is to promote the use of sustainable modes of travel to and from the development, and the FTP includes a package of measures and targets to achieve that objective.

2 BASELINE TRANSPORT CONDITIONS

Introduction

2.1 This section of the report reviews the existing site, local highway network, and the location of the site in relation to local facilities such as employment areas, schools, entertainment and recreational uses and transport links. This section includes details of the local traffic conditions, travel to work characteristics of existing residents within the relevant local Middle Layer Super Output Areas (MSOAs), personal injury road traffic accident data, and committed developments.

Site Description and Location

2.2 The Site is located at the north-western corner of the Local Plan allocated MKE SUE. **Figures 1.1 and 1.2** illustrate the Site area controlled by Bloor Homes and the wider MKE SUE. **Appendix 1** illustrates the location of the site.

2.3 The existing site mostly consists of agricultural land, a former quarry and a small number of dwellings. The Site is bound by the A422 Monks Way to the north, Willen Road to the west, with agricultural land to the east and south of the Site.

2.4 The M1 motorway is located to the south of the Site and runs on a broadly southeast / northwest alignment. The A509 is located east of the Site and has a north / south alignment. A plan showing the wider transport network is included at **Appendix 4**.

Existing Access

2.5 There is an existing vehicular access to the quarry located on the eastern side of Willen Road, approximately 70 metres south of the Glenfields dwelling access road. The width of the entrance to the quarry is circa 30 metres, narrowing to approximately a 10 metres access road.

Local Highway Network

2.6 The Site is well connected to the highway network (via Willen Road) with easy access by road to Milton Keynes and Newport Pagnell, and to the strategic road network via the M1 junction 14.

Willen Road

2.7 Willen Road is a two-lane single carriageway, approximately 7.3 metres wide and is subject to the national speed limit of 60mph. The road forms the western boundary to the Site. There are no waiting restrictions on Willen Road and the road is classified as a district distributor road in accordance with MKC's A Highway Guide for Milton Keynes (September 2018). Footways are not provided on either side of the road, other than at the M1 overbridge, and at Tongwell Roundabout. Street lighting is present on both sides of the road.

2.8 To the north, Willen Road joins Monks Way (A422) and Willen Road (North) at a four-arm roundabout, known as the Marsh End Roundabout. Willen Road (North) continues north from Marsh End Roundabout and provides one of the main routes into central Newport Pagnell. This road is subject to the national speed limit up to its entrance to Newport Pagnell, where it becomes Marsh End Road and is subject to a 30mph speed limit.

2.9 To the south of the Site, Willen Road (S) bridges over the M1 and connects with Michigan Drive / Dansteed Way and Tongwell Street at a roundabout (Tongwell Roundabout), just south of the M1. Tongwell Street to the south of the roundabout provides access to the A509 via Pineham Roundabout. The A509 provides access to Milton Keynes city centre to the southwest and the M1 junction 14 to the northeast of the Pineham Roundabout.

Monks Way (A422)

2.10 To the east of Marsh End Roundabout, Monks Way (A422) forms the northern boundary to the Site's developable area. The road has an east / west alignment and connects with the A509 and London Road at a four-arm roundabout to the east, known as the Tickford Roundabout. Monks Way (A422) is a two-lane dual carriageway, operating at the national speed limit of 70mph, and is approximately 7.3 metres in width in each direction.

2.11 The Tickford Roundabout joins the adjacent Renny Lodge Roundabout in a dumbbell junction arrangement connected by a short two-lane dual carriageway. From the Tickford Roundabout, Renny Park Road forms a second access into Newport Pagnell, but primarily serves the Interchange Park Employment area.

M1

2.12 The M1 is located just to the south of the Site. Access to the M1 is taken from junction 14 located to the southeast of the Site, via the A509. The M1 routes north to destinations including Northampton, Rugby and Leicester, and south to destinations including Luton, Hemel Hempstead, Watford and London.

Pedestrian and Cycle Network

Pedestrian Network

2.13 Existing public footpaths (Moulsoe FP007, Moulsoe FP014 and Moulsoe FP015) are local to the Site and provide connections across the A422 Monks Way, linking the Site to Newport Pagnell and Tickford. Pedestrians following the footpaths are currently not provided with any controlled crossing facilities. A plan illustrating the existing footpaths (including Public Rights of Way (PROW) and redways) within the local area is included at **Appendix 5**.

2.14 The Moulsoe FP007 and Moulsoe FP014 footpaths join at the dual carriageway of A422 Monks Way, circa 250 metres east of the Marsh End Roundabout. The Moulsoe FP007 extends north from the A422, connecting with Willen Road (N). Whilst the Moulsoe FP014 extends to the south of the A422 through the Site and into the MKE area, eventually connecting to Tongwell Street to the south.

2.15 No pedestrian crossing facilities are provided at the Marsh End Roundabout to the north of the Site (Willen Road (S)/A422 Monks Way/Willen Road (N) junction).

2.16 There is a short length of footway provided on each side of Willen Road where it crosses the M1. This footway is circa two metres wide on the western side and three metres on the eastern side. Street lighting which extends across the footways is provided along the length of Willen Road.

2.17 Short footways and dropped kerbs with a central island on Willen Road (S) are provided on the northern arm of the Tongwell Roundabout. A pedestrian / cycle link is provided on the north side of Michigan Drive (Redway Super Route H4), connecting Willen Road (S) to Dansteed Way and to the residential areas of Milton Keynes further south. The pedestrian / cycle link also runs along the northern side of Dansteed Way, connecting to the industrial, retail, and residential areas further west. No footways are provided on Tongwell Street.

Cycle Network

2.18 Cycling is an important mode of sustainable travel and is generally considered suitable for distances of up to three miles (4.8 kilometres) for regular journeys in urban areas, and five miles (eight kilometres) for commuting journeys (source: LTN 2/08, Cycle Infrastructure Design). Topography is not an impediment to cycling within the vicinity of the Site.

2.19 There are a large number of cycle routes across Milton Keynes, and these are categorised as:

- Redway Super Route;
- Redway; and
- Leisure Route / Traffic-Free / Quiet Route.

2.20 The Milton Keynes Redway Super Route H4 is located at Tongwell Roundabout, to the south of the Site, along Dansteed Way. This route provides links to other Redways and traffic-free / quiet routes across Milton Keynes. There are also Redway and traffic-free / quiet routes to the north of the Site, which provide connections to Newport Pagnell.

2.21 A copy of the existing cycle map for Milton Keynes is provided in **Appendix 5**.

Public Transport

Bus

2.22 The nearest bus stops to the Site are located on Willen Road. The southbound bus stop is located approximately 285 metres from the proposed Northern Access junction and the northbound bus stop is located approximately 350 metres from the proposed Northern Access junction. These bus stops serve bus routes 1 and C10 Cranfield Connect.

2.23 **Table 2.1** summarises the routes and frequencies of the bus services from these bus stops.

Table 2.1: Bus Services and Frequencies

Route No.	Route	Average Frequency (per hour)				
		Mon - Fri			Saturday	Sunday
		AM Peak	Off Peak	PM Peak		
Willen Road Bus Stop (southbound)						
1	Newport Pagnell – Tickford End – Downs Barn – Central Milton Keynes – Rooksley - Whitehouse	2	2	2	2	No Service
C10 Cranfield Connect	Bedford – Cranfield University – Newport Pagnell – Central Milton Keynes	1	1	1	No Service	No Service
Willen Road Bus Stop (northbound)						
1	Whitehouse – Rooksley – Central Milton Keynes – Downs Barn – Tickford End – Newport Pagnell	2	2	2	2	No Service
C10 Cranfield Connect	Central Milton Keynes – Newport Pagnell – Cranfield University – Bedford	1	1	1	No Service	No Service

Source: Arriva UK Bus / The University Bus (July 2021)

2.24 **Table 2.1** shows that two bus services are within reasonable walking distance of the Site and provides access to areas including Newport Pagnell, Tickford, Central Milton Keynes, Cranfield University and Bedford. A total of three bus services are available in both the morning and evening peak hour periods.

2.25 The bus route network for Newport Pagnell is illustrated in a map contained in **Appendix 7**.

2.26 Details of the development proposals including measures to improve public transport provision are detailed in **Section 5** (Development Proposals) and **Section 10** (Public Transport Strategy).

National Rail

2.27 Milton Keynes Central National Rail Station is located approximately 6.6 kilometres to the southwest of the Site. The station is operated by London Northwestern Railway and has 900 cycle parking spaces and 964 car parking spaces, of which 18 are designated for blue badge holders.

2.28 The station provides access to West Midlands Trains, Avanti West Coast and Southern, which route to a range of key destinations including London Euston, Manchester Piccadilly, Birmingham New Street, Selhurst, Blackpool North, Crewe, Northampton, Liverpool Lime Street, Clapham Junction and Edinburgh.

2.29 The station is accessible via bus route 1 / C10 Cranfield Connect from Willen Road Bus Stop, (southbound) with an approximate 25-minute journey.

2.30 A summary of the frequency of services from Milton Keynes Central National Rail Station is provided in **Table 2.2**.

Table 2.2: Rail Services and Frequencies

Destination (Direct Route)	Average Frequency (per hour)				
	Mon - Fri			Saturday	Sunday
	AM Peak	Off Peak	PM Peak		
London Euston	5	5-6	6	5-7	5-7
Birmingham New Street	2	2-3	2	1	1-2
Clapham Junction	1	1	1	1	0
Manchester Piccadilly	1	1	1	1	1
Northampton	3	2	3	1	1-2
Liverpool Lime Street	1	0-1	0	0	0-1

Source: Traveline (July 2021)

2.31 **Table 2.2** demonstrates there are regular services operating from the station throughout the day between Milton Keynes and London Euston, Birmingham and Northampton. This will allow residents of the proposed residential development to travel sustainably to areas such as London, Birmingham, Northampton, Manchester and Liverpool.

Local Facilities

2.32 Current transport planning policy seeks to locate new developments in areas where there is a choice of transport modes available to access local facilities, particularly where people can travel by sustainable modes.

2.33 Manual for Streets (Paragraph 4.4.1) states the following:

> **"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot."**

2.34 Furthermore, Local Transport Note 1/04a (Department for Transport 2004), considers acceptable walking and cycling distances at Paragraph 3.10.3, stating:

> **"There are limits to the distances generally considered acceptable for utility walking and cycling. The mean average length for walking journeys is approximately 1 km (0.6 miles)' and for cycling, it is 4 km (2.4 miles)' although journeys of up to three times these distances are not uncommon for regular commuters. The distances people are prepared to walk, or cycle depend on their fitness and physical ability, journey purpose, settlement size, and walking/cycling conditions. Useful guidance on desirable, acceptable and preferred maximum walking distances for different purposes is included in Tables 3.2 and 3.3 of Providing for Journeys on Foot, IHT 2000."**

2.35 To enable an assessment of the viability of walking between the Site and key destinations in the local area, it is appropriate to establish the maximum distance that people are generally prepared to walk and the destinations that exist within these distances.

2.36 The Institute of Highways & Transport (IHT) guidance, *Guidance for Providing Journeys on Foot (2000)* states in paragraph 3.32 and Table 3.2 that the preferred maximum walking distance to local facilities and services is circa two kilometres. The distances for various land uses, are set out in **Table 2.3**.

Table 2.3: Acceptable Walking Distances (metres)

Definition	Town Centres	Commuting / School	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1,000m	800m
Preferred Maximum	800m	2,000m	1,200m

Source: Providing for Journeys on Foot (IHT 2000)

2.37 It is evident from **Table 2.3** that walking offers a great potential to replace short car trips, particularly, but not exclusively, for trips less than two kilometres.

2.38 **Table 2.4** identifies the walking and cycle distance and time to some local facilities and amenities measured from the approximate centroid of the site via the proposed northern access. This table does not provide an exhaustive list, nor suggests that everyone can walk or cycle to these facilities, but rather provides an illustration that there are a good number of local facilities and amenities within the walking and / or cycling capabilities of many people.

2.39 A plan showing the existing local facilities in relation to the Site is included at **Appendix 1**.

Table 2.4: Local Facilities

Facility	Distance from the Northern Access Junction	Approximate Journey Time (Mins)	
		Walking	Cycling
Educational Facilities			
Green Park Primary School	1.75 km	19	8
Lovat Hall Pre-school	1.75 km	19	8
Tickford Park Primary School	1.85 km	20	8
Ousedale School (Secondary & Sixth Form)	2.05 km	23	9
Local Facilities			
Clean Slate Community Church	1.35 km	14	6
Tesco Express	1.55 km	16	7
Lloyds Pharmacy	1.55 km	16	7
Kingfisher GP Surgery	1.55km	16	7
Kingfisher Public House	1.65 km	18	7
Buckinghamshire Priority Dental Clinic	1.75 km	19	8
Sainsbury's Local	1.85 km	20	8
Post Office	2.15 km	24	10
Blakelands Hospital	2.85 km	33	13
Recreational Facilities			
Newport Pagnell Town Football & Social Club Ltd	850 m	8	3
Middleton Pool and Fitness Centre	2.15 km	24	10
Rebellion Fitness	2.45 km	29	12
Public Transport			
Willen Road Bus Stop (Southbound)	535 m	4	1
Willen Road Bus Stop (Norhtbound)	600m	4	2

2.40 **Table 2.4** demonstrates that a range of key facilities located nearby the Site are accessible by foot or cycle. Furthermore, it demonstrates that the Site is reasonably well placed to access to existing bus public transport services.

Observed Traffic Flows

2.41 For the purposes of this TA, to ensure consistency with other MKE SUE transport assessments, traffic count survey data was obtained from WSP/Berkeley Homes and from the Caldecote Farm employment site TA. A plan showing the traffic survey locations is included at **Appendix 8**.

Automatic Traffic Counts (ATC)

2.42 Automatic Traffic Count (ATC) data, has been obtained for surveys (undertaken for seven consecutive days) by Intelligent Data Collection Ltd between 27 June and 03 July 2019 for the following junctions / links:

- Northfield Roundabout (W) and Northfield Roundabout (E);
- Tongwell Street – Tongwell Street Car Park / Carleton Gate (N);
- Willen Road – Tongwell Roundabout (S) / Glenfield (N);
- A422 Monks Way – M1 Overbridge (W) / Marsh End Roundabout (E); and
- A422 – Marsh End Roundabout (W) / Tickford Roundabout (E).

Manual Classified Counts Traffic Counts (MCCs)

2.43 Manual Classified Count (MCCs) and queue length data has been obtained for surveys undertaken on 27 June 2019 for the junctions / links listed below:

- Pineham Roundabout – Tongwell Street (N)/A509 Portway (E) / Tongwell Street (S)/A509 Portway (W);
- Tongwell Roundabout – Willen Road (N) / Tongwell Street (SE)/Dansteed Way (SW) / Michigan Drive (NW);
- Marsh End Roundabout – Willen Road (N)/A422 (E) / Willen Road (S) / A422 Monks Way (E);
- Tickford Roundabout – B526 London Road (N) / A509 (E) / A509 London Road (S) / A422 (W); and
- Renny Lodge Roundabout – Renny Park Road (N) / A509 (E) / A509 (W).

2.44 Due to an error in the data for Pineham Roundabout, this junction was resurveyed on 08 October 2019. The surveys were undertaken between 07:00-10:00 hours, 11:00-13:00 hours and between 16:00-19:00 hours.

2.45 MCC morning (08:00-09:00) and evening (17:00-18:00) peak hour data (2018) for the two junctions listed below has been extracted from the Caldecote Farm TA (application reference 21/02440/OUTEIS). This data was used within this assessment due to insufficient data in the Automatic Number Plate Recognition (ANPR) traffic data obtained from WSP / Berkeley Homes for the M1 J14 / Northfields Roundabout.

Traffic Flow Analysis

2.46 **Table 2.5** compares the total junction traffic flows (based on the traffic survey data), in order to determine the morning and evening peak hours for the highway assessment. Traffic flow diagrams showing the 2018 / 2019 observed traffic flows are included at **Appendix 9**.

Table 2.5: AM Peak Period - Rolling Peak Hour Junction Totals

Junction	Rolling Peak Hour Junction Totals (vehicles)					
	0700:08:00	07:15-08:15	07:30-08:30	07:45-08:45	08:00-09:00	08:15-09:15
Marsh End RAB	3,743	4,106	4,247	4,201	4,116	3,783
Tickford RAB	3,889	4,041	3,941	3,780	3,723	3,556
Renny Lodge RAB	2,828	2,920	2,770	2,608	2,545	2,408
Tongwell RAB	2,073	2,493	2,795	2,949	2,963	2,694
Pineham RAB	3,402	4,073	4,449	4,641	4,567	4,169
Total	**15,935**	**17,633**	**18,202**	**18,179**	**17,914**	**16,610**

Note: RAB = Roundabout

Table 2.6: PM Peak Period - Rolling Peak Hour Junction Totals

Junction	Rolling Peak Hour Junction Totals (vehicles)					
	1600:17:00	16:15-17:15	16:30-17:30	16:45-17:45	17:00-18:00	17:15-18:15
Marsh End RAB	3,950	4,094	4,180	4,291	4,312	4,117
Tickford RAB	4,122	4,212	4,302	4,344	4,384	4,231
Renny Lodge RAB	2,640	2,698	2,804	2,884	2,918	2,801
Tongwell RAB	1,981	2,139	2,169	2,187	2,240	2,051
Pineham RAB	3,364	3,539	3,689	3,764	3,779	3,584
Total	**16,057**	**16,682**	**17,144**	**17,470**	**17,633**	**16,784**

2.47 **Tables 2.5** and **2.6** illustrate the flows are consistently high between 07:15 and 09:00 hours, varying between 17,633 vehicles (07:15-08:15 hours) to 18,202 vehicles (07:30-08:30 hours). In the evening peak period, the network flows are also consistently high between 16:30 and 18:00 hours (between 17,144 and 17,633 flows respectively).

2.48 For the purposes of this TA the time periods of 08:00-09:00 hours and 17:00-18:00 hours have been selected to coincide with the peak hours of the proposed development traffic, and therefore represent the period when the impact of development will be greatest. These assessment time periods are also consistent with the Tickford Fields TA.

Travel to Work Characteristics

2.49 The characteristics of the existing residents' method of travelling to work is included in this section. A detailed assessment is contained within a Technical Note, which was issued to MKC as part of pre-application discussions and is included at **Appendix 3**. This was subsequently approved by Stirling Maynard, Transportation, on behalf of MKC in August 2021.

2.50 A review of the local baseline travel characteristics extracted from the 2011 Census 'Method of Travel to Work' data has been carried out. The review has considered the travel characteristics from local MSOA to determine the baseline travel characteristics most applicable to the Site.

2.51 The Site is located within the Milton Keynes 002 MSOA, which is a large MSOA incorporating several local villages and is predominately a rural area to the north of Newport Pagnell and Milton Keynes. This is a largely rural sparsely populated area, with limited access to Newport Pagnell town centre and Milton Keynes, which is not comparable to the Site and future use.

2.52 The Site borders the Milton Keynes 004 MSOA located to the north and the Milton Keynes 007 MSOA located to the southwest. Both 004 and 007 MSOA include a mix of residential and employment areas. Further details on the suitability of these two MSOA areas are contained in the Technical Note (RPS reference: JNY10094-09, March 2021) included at **Appendix 3**.

2.53 Based on the accessibility of the Site to existing local facilities, along with those that will be delivered as part of the Site and to some degree by the wider MKE, it is reasonable to assume that future residents would adopt similar travel behaviours to existing residents within Milton Keynes 004 and 007 MSOA. An average of these two MSOAs has therefore been used as the baseline modal split for the Site. This is summarised in **Table 2.7**.

Table 2.7: Census Travel to Work (TTW) Modal Split

Method of Travel to Work	MSOA / Modal Split (Percentage)		
	E02003462 : Milton Keynes 004	E02003465 : Milton Keynes 007	Proposed Development Method of Travel to Work
Train	3%	4%	4%
Bus, minibus or coach	4%	5%	4%
Taxi	1%	1%	1%
Motorcycle, scooter or moped	1%	1%	1%
Driving a car or van	74%	72%	73%
Passenger in a car or van	5%	7%	6%
Bicycle	3%	4%	3%
On foot	9%	5%	7%
Other method of travel to work	1%	0%	0%
Total	**100%**	**100%**	**100%**

Source: Census (2011)

2.54 **Table 2.7** shows that on average, 8% of residents use public transport to travel to work (4% train and 4% bus), with 10% travelling on foot / by cycle. 73% of the existing residents travel to work by private car of which 6% car share. The modal split shows that 18% of residents currently travel to work by sustainable modes (8% public transport and 10% foot / cycle).

2.55 To assess what modes of travel are used, as outlined in **Table 2.7**, a review of where people travel to their place of work has been undertaken. **Table 2.8** identifies the key location of where people from the MSOA Milton Keynes 004 and 007 travel to work within the UK. **Table 2.8** also shows the same outputs for residents living within Milton Keynes.

Table 2.8: Work-Place Destinations (Resident Population, UK & MK)

Destination	Percentage of Residents	Destination	Percentage of Residents
Local Authority Districts		**Milton Keynes**	
Northampton	2.8%	Milton Keynes Central	17.9%
South Northamptonshire	1.5%	Broughton Gate	8.2%
Wellingborough	0.5%	Newport Pagnell	5.5%
Luton	1.8%	Tongwell, Willen	4.6%
Bedford	3.0%	Denbigh North	4.2%
Central Bedfordshire	4.7%	Linford Wood	3.7%
Dacorum	0.6%	Wolverton Mill	3.3%
St Albans	0.5%	Walnut Tree	2.6%
London	2.0%	Loughton	2.4%
Milton Keynes	73.1%	**Rest of UK**	**20.7%**
Aylesbury Vale	2.4%		
Rest of UK	**7.0%**		

2.56 **Table 2.8** shows that a large proportion of resident's work in Milton Keynes and the surrounding areas, with only 26.9% of residents working in areas outside of Milton Keynes.

Personal Injury Accident (PIA) Data

2.57 Road traffic accident Personal Injury Data (PIA) records for the surrounding area including key routes and junctions have been obtained from MKC and reviewed for the five-year period from February 2015 to January 2020 (latest available data when obtained). A copy of the PIA study area, plot and data is provided in **Appendix 10.**

2.58 The data indicates that during the five-year period a total of 67 injury accidents were recorded within the study area, one accident was fatal, eight were serious and 58 accidents resulted in slight injuries.

2.59 The PIA analysis for each of the key routes/junctions is set out herein. It should be noted that due to police confidentiality requirements, contributory factors and description of the fatal accident were not available.

Willen Road

2.60 A total of two slight incidents occurred along Willen Road. One slight accident occurred 160 metres south of the Caldecote Farm access and it resulted from a collision between a car travelling south

and a road sweeping vehicle. The car driver failed to notice the slow traffic and collided with the rear of the road sweeping vehicle. Another slight accident occurred in the darkness and it resulted from a collision between a van turning right and a car travelling north. It was attributed to the car driver travelling north failing to look properly and being careless/reckless/in a hurry.

Marsh End Roundabout

2.61 A total of five accidents were recorded at Marsh End Roundabout, one of which was serious. The serious accident occurred in the daylight and it resulted from a collision between two cars. The accident was caused by one of the car drivers' following too close and another car driver travelling too fast and being an inexperienced driver. A slippery road (wet) was also identified as a causation factor of the incident.

2.62 All four slight incidents recorded at Marsh End Roundabout involved cars only.

Tickford Roundabout

2.63 A cluster of five slight accidents occurred at Tickford Roundabout in daylight. One accident involved a collision between a van and three cars, three accidents involved collisions between two cars, one accident involved a goods vehicle being rolled onto its side

2.64 The causes of the accidents include:

- Car drivers' being careless / reckless / in a hurry, failing to judge other persons path and losing control;
- Car drivers' failing to look properly;
- Car driver exiting roundabout being careless / reckless / in a hurry and losing control;
- Overloaded or poorly loaded vehicle and having poor turn or manoeuvre; and
- Car drivers failing to look properly.

A422 Monks Way

2.65 A cluster of four slight accidents occurred along the A422 between Marsh End Roundabout and Tickford Roundabout.

2.66 One accident involved a collision between a car and a bicycle, which was caused by the car driver failing to look properly. The three other slight accidents all involved two cars each, all were caused by car drivers failing to judge the other persons' path. One accident also included losing control, failing to look properly and distraction in vehicle was also identified as a causation factor of one of the accidents.

London Road (A509)

2.67 A total of six accidents were recorded on London Road, of which one was serious. The serious accident occurred in the daylight, 650 metres north of the Holiday Inn hotel and involved a collision between a car travelling south and a car travelling north. The car travelling north crossed into the opposite lane and collided with the car going south. The cause was due to the car driver travelling north being fatigued, being ill or mental, being impaired by drugs, being careless / reckless / in a hurry and failing to look properly. Distraction in vehicle was also identified as a causation factor of the incident.

2.68 Five slight accidents occurred on this road with four taking place in the daylight and one in darkness.

2.69 Two accidents resulted from a collision between a car and a motorbike, another involved a collision between a goods vehicle travelling south and a pedestrian, one accident resulted from a collision between two cars travelling south and another accident involved a collision between three cars.

2.70 The causes of the accidents include:

- Car drivers' failing to look properly;
- Pedestrian wearing dark clothing at night;
- Motorbike having poor turn or manoeuvre and the car driver failing to look properly and to signal;
- Car driver's failing to judge other persons path and losing control; and
- One of the car drivers being distracted in vehicle and failing to judge other persons path or speed.

Renny Lodge Roundabout

2.71 A cluster of five accidents occurred at Renny Lodge Roundabout, of which one was serious and four were slight.

2.72 The serious accident occurred in the daylight and involved a collision between two cars travelling south. The causation factor was identified as one of the car drivers' travelling too fast, having poor turn or manoeuvre and failing to judge other persons path or speed. The weather was wet.

2.73 Three slight accidents occurred in daylight and one in darkness and included: a collision between a goods vehicle travelling southwest and a car travelling the same direction; a collision between a car travelling northeast and a car travelling on Renny Park Road entering the roundabout; a collision between a van and a goods vehicle and a collision between two cars.

2.74 The causes of the accidents include:

- Goods vehicle driver having poor turn or manoeuvre and failing to look properly;
- Car driver entering the roundabout failing to judge other persons path or speed, having poor turn or manoeuvre and being careless / reckless / in a hurry;
- Van driver failing to judge other persons path or speed and being careless / reckless / in a hurry; and
- Car drivers travelling too fast and being impaired by alcohol.

Tongwell Roundabout

2.75 A total of three slight accidents were recorded at Tongwell Roundabout, two occurred in daylight and one in darkness. The accidents involved a collision between a car traveling southeast on Michigan Drive and a car approaching the roundabout, collision between two cars entering the roundabout and a goods vehicle colliding with the splitter island of the roundabout. The weather condition was wet.

2.76 The causes of the accidents include:

- Car travelling southeast making a poor turn or manoeuvre;
- Car drivers failing to look properly, to judge other persons path or speed as well as being careless / reckless / in a hurry; and
- Car driver having fatigue, illness or disability.

Pineham Roundabout

2.77 A total of ten accidents were recorded at Pineham Roundabout, of which one was serious. The serious accident occurred in the daylight and involved a motorbike losing control while entering the roundabout. It was attributed to the rider travelling too fast, failing to look properly, sudden braking, losing control and failing to judge other persons path or speed. The weather condition was fine without high winds.

2.78 Of the nine slight accidents, eight occurred in daylight and one in darkness. The accidents involved:

- Collision between a car approaching the roundabout and a van travelling north;
- Motorbike (the weather condition was raining without high winds);
- Collision between a bus and a car entering the roundabout;
- Collision between a goods vehicle and a car entering the roundabout;
- Collision between a bicycle and a car travelling east;
- Car losing control and colliding with a barrier while exiting the roundabout;
- Collision between two cars and a van travelling west;
- Collision between two cars; and
- Car travelling north and a bicycle travelling west.

2.79 The causes of the accidents include:

- Van failing to judge other persons path or speed and making a poor turn or manoeuvre;
- Motorbike losing control due to slippery road and deposit on road;
- Car driver overshooting the junction;
- Goods vehicle driver having poor turn or manoeuvre, being careless / reckless / in a hurry and being fatigued;
- Bicycle failing to look properly, failing to judge other persons path or speed and being careless / reckless / in a hurry;
- Car driver travelling too fast. The weather condition was raining without high winds;
- Van driver failing to look properly and to the car drivers driving too slow for conditions and failing to judge other persons path or speed;
- Bicycle not displaying lights at night or in poor visibility; and
- Unknown.

Tongwell Street

2.80 One serious accident was recorded at the junction with Carleton Gate. It occurred in the daylight and involved a collision between a car turning right onto Tongwell Street and a van travelling northwest on Tongwell Street. The causation factor was identified as the van driver having illness or disability. The weather condition was fine without high winds.

Summary

2.81 A PIA review has been undertaken and has concluded, from the information available, that the incidents recorded on the local highway network are attributable to factors unrelated to the design of the highway network. Whilst 67 accidents were recorded, the study area is a large area of the local highway network and covers a five-year period.

2.82 The majority of accidents involved motorised vehicles, with only a small proportion of accidents involving non-motorised users such as cyclists and pedestrians. The causes of accidents for motorised users generally relate to human error such as failing to look properly, travelling too fast / slow, failing to judge other people's speed, reckless driving, losing control, fatigue / illness / disability. Whilst the causes of non-motorised user accidents include motorised vehicles failing to look properly and cyclists / pedestrians not being clearly visibility to other road users (either by not wearing visible clothing / having lights).

2.83 The PIA data has not highlighted any potential deficiency in the design of the highway network and hence it is considered there are no prevailing highway safety issues that need to be addressed within the study area.

Committed / Proposed Developments

2.84 The traffic flows of the following committed / proposed development sites have been considered as part of the TA.

Tickford Fields

2.85 Tickford Fields committed development (application reference 20/00133/OUTEIS) was approved on 28th May 2021.

2.86 The approved development comprises the development of up to 930 residential dwellings, primary school, local centre, opens pace, sports pitches, play areas, pavilion / wellbeing centre and other associated works at Tickford Fields Farm, North Crawley Road, Newport Pagnell, MK16 9HG.

2.87 The transport improvements proposed as part of this approved development, relevant to the Bloor Homes Site is the partial signalisation of the Tickford Roundabout junction.

Caldecote Farm Employment Site

2.88 Newlands Caldecote Farm development proposal comprises two storage and distribution units with a total of 78,429 square metres (GIA), with associated access, car parking, servicing, landscaping, earthworks, on and off-site drainage and off-site highway works.

2.89 Application reference 21/02440/OUTEIS was submitted on 12th August 2021 and is pending determination.

2.90 The transport improvements proposed as part of the employment site and as agreed with MKC, relevant to this development site are as follows:

- new signal-controlled T-junction on Willen Road (directly opposite the Caldecote Farm access / Bloor Homes Site);
- improved pedestrian / cycle linkages to Newport Pagnell including pedestrian / cycle crossing facilities at the Marsh End Roundabout (at grade), to the north of the Site. This crossing will improve sustainable and active travel linkages to Newport Pagnell;
- a new 3-metre Redway (footway / cycle) on Willen Road (western side, crossing to the eastern side to the north of the Site access junction);
- improvements to existing public transport services including relocated bus stops on Willen Road, with raised kerbs, shelters with seating and real-time information display screens. These improvements will promote bus travel and improve the overall experience at these bus stops;
- a financial contribution (£109,500) to enable the timing of the existing Willen Road bus services to be extended to cover the early shift at the employment site and to enable a weekend service to be provided. This contribution was agreed in conjunction with the refused 2020 planning application; however, it is anticipated that MKC will seek a similar contribution in conjunction with the current planning application; and
- Significant enlargement of the Marsh End Roundabout junction including:
  - The introduction of traffic signal control on all four arms;
  - Widening on the A422 eastbound and westbound approaches to increase the length of the three-lane sections;
  - Provision of pedestrian / cycle crossings on the A422 arm to the east of the junction as part of the proposed new Redway;
  - Significant widening on the Willen Road (N) arm, including the provision of the new Redway on the eastern side to the south of the Site access, connecting to existing provision just to the north of Tongwell Lane and a new Redway on the eastern side to the north of the Site access connecting to Marsh End Roundabout; and
  - Significant widening of the Willen Road (S) arm to provide two full lanes northbound and southbound between the Marsh End Roundabout and the proposed site access junction along with the provision of the new Redway route.

2.91 These transport improvements are important in understanding the proposed access strategy for the Bloor Homes Site, particularly to ensure that the development is fully integrated and well connected within the surrounding area to maximise access, travel by sustainable modes and in a safe manner. Further details are included in **Section 5**.

MKE SUE

2.92 The Site has been designed to take account of the MKE SUE by allowing for a future connection with the proposed new Milton Keynes East grid road / Mass Rapid Transit route (which runs along the southeast boundary of the Site), should this be implemented.

2.93 Further, pedestrian access will be provided for along the eastern side of the Site to enable future connections to the wider MKE SUE to be accommodated to ensure maximum permeability between the sites.

Summary

2.94 This section has described the location of the Site with respect to the wider MKE SUE and local highway, pedestrian and cycle networks.

2.95 The Site is readily accessible to two regular bus services within approximately 350 metres walking distance of the proposed Northern Access junction. These bus services provide access to areas including Newport Pagnell, Tickford, Central Milton Keynes, Cranfield University and Bedford. A total of three bus services are available in both the morning and evening peak hour period.

2.96 Milton Keynes Central National Rail Station is located approximately 6.6 kilometres to the southwest of the Site and provides access to a range of key destinations including London Euston, Manchester Piccadilly, Birmingham New Street, Selhurst, Blackpool North, Crewe, Northampton, Liverpool Lime Street, Clapham Junction and Edinburgh. The station is also accessible via bus route 1 / C10 Cranfield Connect from Willen Road Bus Stop, (southbound) with an approximate 25-minute journey time.

2.97 It has been demonstrated that a range of key facilities are located within a reasonable walking and / or cycling distance of the Site.

2.98 A summary of the location and results of traffic surveys relevant to this application has been provided. It has been identified that for the purposes of this TA, the time periods of 08:00-09:00 hours and 17:00-18:00 hours have been selected for detailed assessment, coinciding with the peak hours of the proposed development traffic, mindful that network traffic flows are generally consistent during the morning and evening peak hours.

2.99 It has been shown that 18% of the existing residents within the assessed local area currently travel to work by sustainable modes of transport. This is probably influenced by the high proportion of local residents who work within Milton Keynes

2.100 It has been demonstrated that there are no underlying deficiencies in the design of the existing highway network with the majority of PIAs associated with poor driver behaviour.

2.101 This section also identifies the existing committed developments within the area that this assessment will need to take account of, as agreed with MKC, includes Tickford Fields (application reference: 20/00133/OUTEIS), Caldecote Farm employment site (application reference: 21/02440/OUTEIS) and the wider MKE Berkeley Homes development site (application reference: 21/00999/OUTEIS).

3 TRANSPORT POLICY AND GUIDANCE

Introduction

3.1 This section details the transport policy and guidance against which the development proposals has been considered.

National Policy and Guidance

National Planning Policy Framework (NPPF, Revised 2021)

3.2 The current National Planning Policy Framework (NPPF) was updated on 20 July 2021, replacing the previous Framework revised in July 2018 and updated in February 2019.

3.3 The NPPF sets out several transport objectives designed to facilitate sustainable development and contribute to a wider sustainability by giving people a choice about how they travel. In particular, Section 9 'Promoting sustainable transport'.

3.4 Paragraph 110 states:

> **"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:**
> **a. appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;**
> **b. safe and suitable access to the site can be achieved for all users;**
> **c. the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and**
> **d. any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."**

3.5 Paragraph 111 continues that:

> **"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."**

3.6 In terms of planning applications NPPF states at paragraph 112(a) that development should:

> **"Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas, and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use."**

3.7 Paragraph 113 covers the need for Travel Plans and Transport Statements / Assessments for all developments which generate significant amounts of movement.

3.8 Paragraph 108 states that:

> **"Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with Chapter 11 of this Framework)…"**

3.9 Regarding parking, Paragraph 107 of the NPPF states that:

> **"If setting local parking standards for residential and non-residential development, policies should take into account:**
> **a) the accessibility of the development;**
> **b) the type, mix and use of the development;**
> **c) the availability of and opportunities for public transport;**
> **d) local car ownership levels; and**
> **e) the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles."**

Planning Practice Guidance (NPPG) 'Travel Plans, Transport Assessments and Statements in Decision-Taking' (March 2014)

3.10 This Guidance provides advice on when Travel Plans, Transport Assessments and Statements are required, and what they should contain.

3.11 Transport Assessments and Statements are ways of assessing the potential transport impacts of developments, and they may propose mitigation measures to promote sustainable developments. Transport Assessments are thorough assessments of the transport implications of development, and Transport Statements are a 'lighter-touch' evaluation to be used where this would be more proportionate to the potential impact of the development.

3.12 Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe", which may be a reason for refusal, in accordance with the NPPF.

3.13 Travel Plans are long-term management strategies for integrating proposals for sustainable travel into the planning process. They are based on evidence of the anticipated transport impacts of development and set measures to promote and encourage sustainable travel.

Local Policy

3.14 National policy on transport and land use establishes broad policy objectives that reflect the Government's aspirations for integrating land development and transport. The local strategy with respect to land use and transport is articulated in statutory and guidance documents prepared by planning and highway authorities which, for this development, comprise:

- Plan: MK 2016-2031 (Adopted March 2019);
- Milton Keynes East Strategic Urban Extension Development Framework, SPD (March 2020);
- Milton Keynes Council, Parking Standards SPD (January 2016);
- Mobility Strategy for Milton Keynes 2018-2036 (LTP4), Mobility for All (March 2018); and

- Milton Keynes Council, A Highway Guide for Milton Keynes, A guide for developers (September 2018).

Plan: MK 2016 – 2031 (Adopted March 2019)

3.15 The Local Plan for Milton Keyes, referred to as Plan:MK, was adopted by Milton Keynes Council in March 2019. Plan:MK now forms part of the Council's Development Plan and replaces both the Core Strategy (2013) and saved policies of the Local Plan (2005). Plan:MK sets out the Council's strategy for meeting the Borough's needs until 2031.

3.16 A summary is provided below of the relevant policies associated to the Site and transport matters.

3.17 Policy SD1 Place-Making Principles for Development, states that:

> **"A. Proposals for new strategic urban extensions, strategic scale development and, where relevant, other development within or adjoining the Milton Keynes urban area should demonstrate that the following place-making principles have been considered:**
>
> **2. Development integrates well with the surrounding built and natural environments to enable a high degree of connectivity with them, particularly for pedestrians and cyclists and for access to connected green infrastructure for people and wildlife;**
>
> **15. Impacts on the road network have been thoroughly identified through appropriate technical assessments and appropriate mitigation measures and improvements to the road network and public transport have been identified and incorporated into the development or the wider area as required;**
>
> **16: Transport solutions maximise the opportunities provided by smart, shared and sustainable mobility solutions to deliver real alternatives to the private car (e.g., connectivity with existing and forthcoming rail services; rapid transit; driverless vehicles; shared vehicles schemes; coaches and buses);**
>
> **17: The provision of strategic grid road or highway infrastructure should build in measures for rapid public transport solutions as set out in the Council's Mobility Strategy 2019-2036 (or any successor document)."**

3.18 The Development Site is located within the MKE SUE area as identified by Policy SD12 of the Plan:MK.

3.19 Policies SD9 and SD10 set out the general principles for and delivery of Strategic Urban Extensions respectively and SD12.

3.20 Specifically, Policy SD9 General Principles for Strategic Urban Extensions, states that:

> **"A. Proposals for Strategic Urban Extensions, and the documents required under SD10 to guide their development, should be prepared in accordance with the principles set out below. This policy will also be applied to any planning application(s) for unallocated strategic development sites.**

1. To provide an appropriate amount of employment and retail uses consistent with the role of the site within the wider strategy and relevant policies guiding those types of uses in the Borough;

2. To provide the necessary social, grey and green infrastructure at the appropriate stage, rate and scale to support the proposed development, in accordance with an approved Infrastructure Delivery Plan. Strategic Urban Extensions will be expected to make a contribution proportionate to its scale and impact for the delivery of strategic infrastructure requirements identified in the Local Investment Plan.

3. To be supported by or incorporate:

i. Environmental impact and transport assessment.

ii. An archaeological investigation (with reference to the Historic Environment Record and further assessment if required) and consideration of the Historic Landscape Characterisation to inform the layout of development.

iii. Design, land use, transport routes and mobility measures that integrate the Strategic Urban Extension with the existing built up area and enable future expansion beyond the Strategic Urban Extension where appropriate.

iv. Where national planning policy indicates that urban expansion beyond the Strategic Urban Extension would be inappropriate and should be restricted, then the Strategic Urban Extension should incorporate layout and design features that create a permanent long-term development boundary.

v. A green infrastructure and open space strategy to improve biodiversity, provide advanced structural planting, extend the "forest city" concept, create green road and street scenes, and incorporate public art and leisure and recreation facilities.

vi. A management and maintenance strategy for open space and landscaping, outlining details of the owner, the responsible maintenance body, and how long-term maintenance will be funded.

vii. Planning obligations relating to the phasing of development and the provision of on-site and off-site infrastructure and facilities, to include land, capital and initial running costs.

viii. The monitoring of biodiversity or green infrastructure improvement should be delivered in accordance with the relevant Development Brief."

3.21 Policy SD10 Delivery of Strategic Urban Extensions, states that:

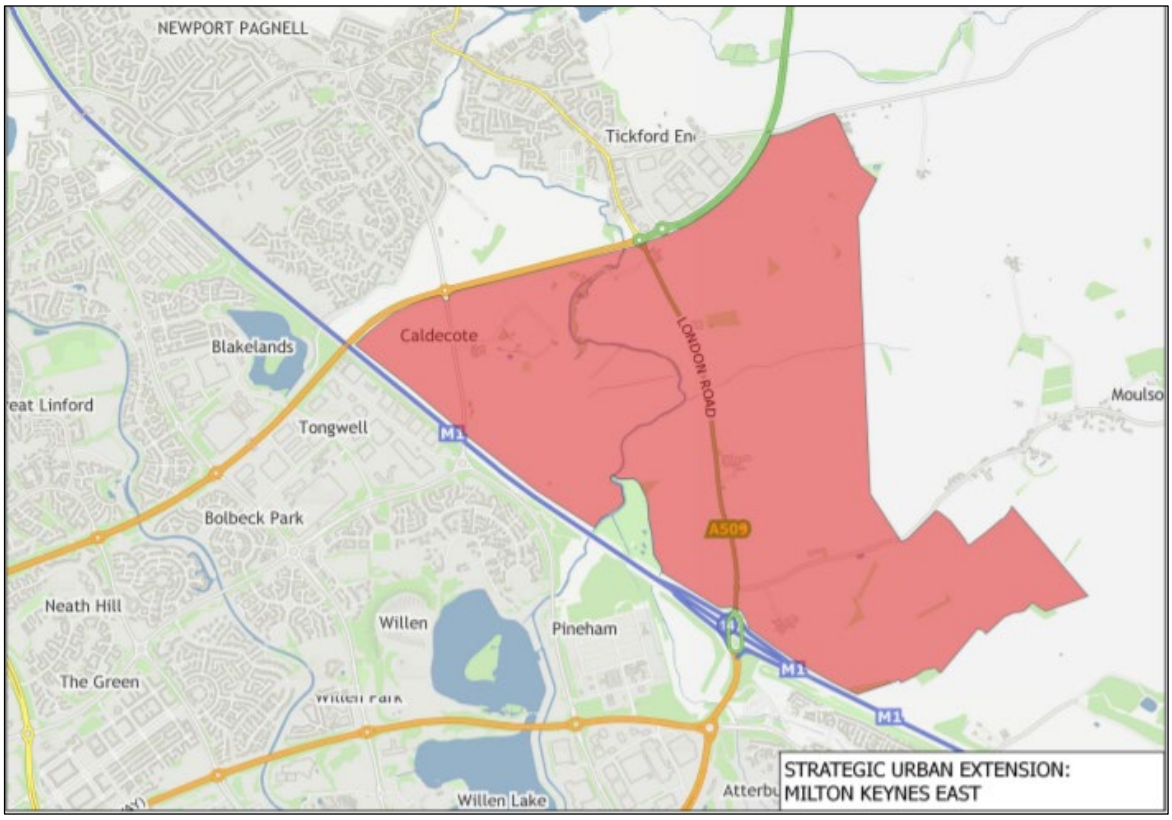
"A. To ensure that Strategic Urban Extensions are brought forward in a strategic and comprehensive manner, planning permission will only be granted for land

within Strategic Urban Extensions, following the approval by the Council of a comprehensive development framework, incorporating any necessary design codes, or phasing of development and infrastructure delivery, including green infrastructure delivery, for the Strategic Urban Extension as a whole;

B. Development frameworks will be produced by the Council in conjunction with and with the support of the developer(s). Development frameworks will also be prepared in partnership with landowners, adjoining local planning authorities, parish or town councils, infrastructure providers, regional and local agencies and services, statutory consultees, the Parks Trust and other stakeholders. Development frameworks will be prepared in consultation with the local community. The Council will adopt development frameworks as supplementary planning documents to guide future planning applications."

3.22 Plan:MK identifies that the land to the east of the M1 motorway, south of Newport Pagnell, as shown in **Figure 3.1**, is allocated for a mixed residential and employment development. The Site falls within this allocated land, which is referred to as Milton Keynes East.

Figure 3.1: Milton Keynes East Land Allocation



Source: Plan:MK (March 2019)

3.23 Policy SD12 Milton Keynes East Strategic Urban Extension, states that:

"A. Land is allocated at Milton Keynes East – as shown on the Key Diagram and Policies Map – for a comprehensive new residential and employment development to meet the long-term needs of Milton Keynes. Development can commence once the necessary strategic infrastructure required to make the site deliverable is funded and is being delivered. In that circumstance, the development of the site will be allowed to proceed within the plan period as an additional source of housing and employment land supply.

B. Development will be brought forward in line with all relevant policies in Plan:MK, particularly Policies SD1, SD9, SD10 and INF1. A comprehensive development framework for the site will be prepared in accordance with the Policies SD1, SD9, SD10 and INF1and approved by the Council prior to planning permissions being granted.

C. The development framework and subsequent applications for planning permission will establish the quantum and form of development in more detail, but proposals for development will be expected to meet the following criteria:

1. **Delivery of around 5,000 new homes, including at least 1,475 homes within the plan period, providing a range of sizes, types and tenures, including affordable housing, in accordance with other policies in the Plan.**
2. **Around 105 hectares of land for a mix of employment uses, complementing the role and function of CMK.**
3. **Associated infrastructure including primary and secondary education, community facilities, health, retail and local services and a hotel. The development should comprise at least one district centre and/or local centre(s), of scale commensurate to the needs of the new community and that would not adversely affect the viability and vitality of Newport Pagnell district centre, with a co-location of key facilities.**
4. **The phased introduction of a comprehensive network of transport infrastructure in line with the Local Investment Plan, to include grid road connections to H4/V11to the west and improved highway connections to Newport Pagnell and Central Milton Keynes (CMK), including new and/or enhanced vehicular crossings of the M1, involving highway works on and off-site.**
5. **A corridor of land safeguarded for a fast mass-transit system, and associated infrastructure, enabling connectivity to CMK and other key destinations. The width of the corridor should be sufficient to enable a range of possible transit solutions to come forward whilst also ensuring the efficient use of land for achieving the scale of development proposed within this policy.**
6. **A network of segregated, and where appropriate grade-separated, new and enhanced footpaths, cycleways and bridleways (including red ways) to connect to existing routes beyond the site, including provision of appropriate pedestrian and cyclist crossings of the A422 and suitable safe and attractive crossings of theM1 as appropriate.**
7. **A strategic green infrastructure framework and network of green spaces to meet strategic and local requirements that follows the guidance in the**

Council's Landscape Character Assessment and Green Infrastructure Strategy to ensure ecological connectivity, protect the identity and character of nearby settlements and mitigate any significant impacts on the landscape in accordance with Policy NE5.

8. **The creation of a linear park through the site that broadly correlates with the River Ouzel floodplain and existing green infrastructure assets of value within and adjacent to it.**
9. **Be informed by appropriate surveys of archaeology, built heritage and ecology with appropriate mitigation of impact as consistent with other policies of the Plan and the NPPF. An archaeological field study, including a Geophysical Survey, where appropriate following desk-based assessment, will required to identify potential below ground archaeology. Where feasible, the Council will expect below ground archaeology to be kept in situ in preference to its removal."**

3.24 Chapter 8 of Plan: MK – Transport and Connectivity sets out policies to ensure delivery of a sustainable transport network, including walking and cycling, public transport, low emission vehicles, freight and the grid road network

3.25 Specifically, Policy CT2 Movement and Access, states that:

"A. Development proposals will be required to minimise the need to travel, promote opportunities for sustainable transport modes, improve accessibility to services and support the transition to a low carbon future. Development proposals will be permitted that:

1. **Integrate into our existing sustainable transport networks and do not have an inappropriate impact on the operation, safety or accessibility to the local or strategic highway networks.**
2. **Mitigate impacts on the local or strategic highway networks, arising from the development itself or the cumulative effects of the development, through the provision of, or contributions towards necessary and relevant transport improvements including those secured by legal agreement.**
3. **Ensure that development proposals do not prejudice the future development or design of suitable adjoining sites.**
4. **Provide safe, suitable and convenient access for all potential users.**
5. **Provide on-site layouts that are compatible for all potential users with appropriate parking and servicing provision in line with the Milton Keyes Parking Standards Supplementary Planning Document (January 2016).**
6. **Do not result in inappropriate traffic generation or compromise highway safety.**
7. **Offer maximum flexibility in the choice of travel modes, including walking and cycling, shared transport, and with accessibility for all potential users.**
8. **Protect and where possible enhance access to public rights of way.**
9. **Provide a public transport connection to the main points of service provision including nearest district or town centre, or community facilities.**
10. **Where possible incorporate the use of shared transport and low carbon 'green' travel modes such as electric vehicle charging capacity.**

B. Development proposals that generate significant amounts of movement or impact on level crossings must be supported by a Transport Statement or Transport Assessment and will normally be required to provide a Travel Plan, with mitigation implemented as required. Development proposals which generate a significant number of heavy goods vehicle movements will be required to demonstrate, by way of a Routing Management Plan, that no severe impacts are caused to the efficient and safe operation of the road network and no material harm is caused to the living conditions of residents or the natural environment."

3.26 Policy CT3, Walking and Cycling, states that:

"A. The Council will support developments which enable people to access employment, essential services and community facilities by walking and cycling. In particular:

1. **The layout of the external environment, including links to adjoining areas should provide attractive, convenient, direct, safe, secure and easy-to follow pedestrian and cycle routes that are well connected to the existing network. Primary cycling routes such as those to Central Milton Keynes and public transport hubs should be as direct and uninterrupted as possible, e.g. along grid road corridors.**
2. **Incorporate measures to minimise vehicle speed and give priority to pedestrians and cyclists.**
3. **Create safe, well lit, convenient and attractive walking and cycling connections to existing developments, neighbourhoods, jobs and services. Locations that are a deterrent to pedestrians and cyclists should be improved, including crossing points at roads.**
4. **A Transport Statement or Transport Assessment should be undertaken to ensure that the impact of proposed new development at existing level crossings is assessed by developers, and suitable mitigation incorporated within the development proposals.**
5. **The existing redway, footway and right of way network should be retained, improved and extended to the current redway design standards.**
6. **Provide supporting facilities including wayfinding, pick up points, secure cycle parking, electric bike charging facilities and, where necessary, shower and changing facilities.**
7. **Facilitate cycle hire schemes through the provision of land and/or planning obligations, where relevant, to ensure the provision of sufficient capacity.**
8. **The Council's priorities for improving access and conditions for pedestrians and cyclists are:**
   - **i. Routes from nearby settlements to MKC.**
   - **ii. The Redway Super Route Network.**
   - **iii. Routes to and within CMK and town centres.**
   - **iv. The National Cycle Network."**

3.27 Policy CT5 Public Transport, states that:

"A. Development proposals must be designed to meet the needs of public transport operators and users. In particular:

1. **Road layouts must include direct, convenient and safe public transport routes and be free of obstructive parking.**
2. **Public Transport priority measures must be implemented, where appropriate.**
3. **Where appropriate and necessary, all houses and most other developments must be no more than 400m from a bus stop.**
4. **Bus stops must have good pedestrian access, be open to public supervision and be sheltered where appropriate; and**
5. **Specific considerations must be given to the provision of public transport services in planning new development."**

3.28 Policy CT6 Low Emission Vehicles, states that:

"A. The Council will maximise the use of sustainable transport in developments, and support low carbon public and personal transport such as electric cars and buses.
B. The Council will require new facilities for low emission vehicles to be integrated into new major development schemes where local centres are proposal.
C. All new developments will be required to provide electric charging points in line with standards set out in the Milton Keynes Parking Standards.
D. Rapid and fast charging points will be located throughout Milton Keynes as well as at key locations including Central Milton Keynes, employment sites, railway stations, major retail and visitor destinations, outside schools, local centres and car parks.
E. To maximise the use of sustainable modes of transport, new residential developments will be required to provide electric charging points, at a rate of 1 charging point per dwelling at each dwelling."

3.29 Policy CT8 Grid Road Network, states that:

"A. The grid road network is a unique characteristic of Milton Keynes, as it allows quick vehicle movement of through traffic – cars and public transport – across and through MK and enabling the separation of local traffic movements in residential neighbourhoods and employment areas with grid squares. The Council will conserve and enhance its iconic grid road system whilst safeguarding the corridors for possible mass transit schemes.

B. The complementary 'redway' network alongside the grid road allows for the safe and efficient movement of pedestrians and cyclists through MK, with grade separated crossings of the grid roads via bridges or underpasses.

C. Opportunities for extending the grid road system design and redway super network route into any major new development areas will be required to ensure that the grid continues to function effectively and sufficient land/corridors are safeguarded for future highway/transit links around the district to accommodate and manage increased travel demands changing and future travel demands. The Council will also seek to extend grid roads and redway super network route to link with new cross-boundary developments. New grid roads should also include green infrastructure buffers to improve air quality, reduce noise and vibration and enhance the landscape and result in a net gain in biodiversity.

D. New grid roads will be designed with the following characteristics:

1. **Grid roads will run in generous multi-functional green infrastructure reservations (which are designed to allow for future upgrading to dual carriageways if and when required);**
2. **Grid roads will also accommodate main services, and landscaping of appropriate road surfaces to protect adjacent development from the noise and visual intrusion of traffic and give a green character to the road. Where possible, grid roads will incorporate a bund providing additional protection;**
3. **Grid roads will also be designed for use by public transport and for alternative forms of transport if required [e.g., electric cars/driverless cars], with bus laybys at intersections with pedestrian bridges and underpasses and controlled crossings where appropriate;**
4. **Grid Road Reserves will be identified in order to safeguard further potential extension of the grid and enable future development to access the grid;**
5. **Grid road reservations should be 80m in width where residential is on each side and 60m where other land uses occur;**
6. **Junction spacings will be set out as in MK Planning Manual. Redways should be setback 3m from the carriageway;**
7. **In order to improve pedestrian safety, in line with the Planning Manual, development incursions would be considered permissible within the grid road reserves at "points of connection", for example where redways pass underneath the grid road and at bus stops. This might include local centres and housing which should be designed to provide surveillance over the underpass or bus stop. This development should not however constrain the overall 60m width such that it prejudices future transport systems from being implemented. The overall green character and multi-functional green infrastructure of the grid road reserves should also still be maintained. The effect should be a green corridor punctuated at "points of connection" by development. This development could also have the important benefit of assisting with wayfinding around the grid road system, especially for visitors;**
8. **There are cross-border locations where MK Council considers that the extension of the grid road network, as part of new or future development allocations, will provide benefits to both local communities in MK and those in the adjacent district, as well as provide much needed connections to the strategic road network. Milton Keynes Council will seek the safeguarding of grid road connections and extensions or reserves through joint working and consultation responses to neighbouring authorities' local plan policy, or its response to planning applications in adjacent districts; and**
9. **As MK's Mobility Plan develops, it is possible that some areas will be designated for higher densities, with a different relationship to grid roads and public transport corridors. An appropriate specification for that relationship will be produced at that time. The specification will only apply to those designated areas."**

3.30 Policy CT10 Parking Provision, states that:

> **"A. Development proposals should meet the following parking requirements:**
>
> **1. All development should meet the Council's full parking standard, unless mitigating circumstances dictate otherwise.**
> **2. On-site parking should not be reduced below the Council's full expectations if this would increase additional pressure in off-site parking that could not be resolved by on-street parking controls.**
> **3. Parking areas should be well designed in terms of safety, circulation, appearance and assist access by pedestrians and cyclists.**
> **4. All residential, retail and employment users should provide electric vehicle charging points (EVCPs) in accordance with the current Milton Keynes Parking Standards, and provide a forward thinking approach. For locations of rapid and fast charging points, see policy CT6 D."**

3.31 Chapter 10 of Plan:MK considers the delivery of infrastructure associated with developments to ensure adequate provision is made.

3.32 Policy INF1 Delivering Infrastructure, states that:

> **"New development that generates a demand for infrastructure, facilities and resources will only be permitted if the necessary on and off-site infrastructure required to support and mitigate the impact of that development is either:**
>
> **1. Already in place; or**
> **2. There is a reliable mechanism in place to ensure that infrastructure, facilities and resources will be delivered in the most appropriate places and at the earliest opportunity, to the required high standards demanded by this Council and its partners. This might include improvements for highway schemes such as bus and rail provisions and enhancement for walking and cycling facilities, or the provision of improved and better connected green infrastructure, local health, shopping and recreational facilities.**
>
> **The Council will prepare a new Planning Obligations Supplementary Planning Document to cover infrastructure and service requirements, including site-specific infrastructure to be delivered through Section 106 agreements. Where a developer delivery early infrastructure in advance of, or prior to development, then the 'abnormal' costs of this infrastructure will be credited against future planning obligations for the site.**
>
> **Where appropriate, the Council will permit developers to provide the necessary infrastructure and facilities themselves as part of development proposals, rather than by making financial contributions, provided that these include funded proposals for long term management and maintenance.**
>
> **If applicable, the Council will give consideration to the likely timing of infrastructure provision. As such, development may need to be phased after either spatially or over a period of time to ensure the provision of infrastructure is delivered in a timely manner and to meet the Council's expectations. Therefore, conditions or a planning obligation may be used to secure this phasing**

arrangement. All infrastructure provision should ensure that it is provided to meet the needs of future growth and take into account external growth of the site.

E. In the case of a number of developments in close proximity, the Council will seek voluntary agreements from developers to contribute towards the costs of jointly required infrastructure, therefore improving the acceptability of the development, reducing the need for statutory S10t6 contributions and enhancing the attractiveness of the development to potential buyers.

F. The above policy should be read in conjunction with Policy SD10 which outlines the Council's requirements for providing infrastructure provision for strategic urban extensions."

3.33 Chapter 15 considers the Design of new developments to ensure a high quality environment is maintained within the Borough.

3.34 Policy D5 Amenity and Street Scene, states that:

"…2.. The sitting, layout and design of vehicle and cycle parking, including detached garage blocks, within development proposals will be required to ensure an attractive and coherent street scene is maintained, not prejudice the wider functionality of public and private space, and create an effective functional link and relationship with the buildings and areas they will serve.

3. Appropriate provision of service areas and refuse storage and collection areas should be made according to the nature of the development. Such areas and access to them should be appropriately sited and designed to ensure they can:

a. Perform their role effectively without prejudicing or being prejudiced by other functions and users;
b. Maintain an attractive and coherent street scene and protect visual amenity; and
c. Avoid creating risk to human health or an environmental nuisance."

Milton Keynes East Strategic Urban Extension Development Framework, SPD (March 2020)

3.35 The Milton Keynes East Development Framework was adopted on 10 March 2020. The SPD provides guidance on how the allocation of MKE SUE should be planned and developed. The SPD will be a material consideration in any future planning applications for development of the MKE allocation.

3.36 A vision for MKE is provided within the SPD as follows:

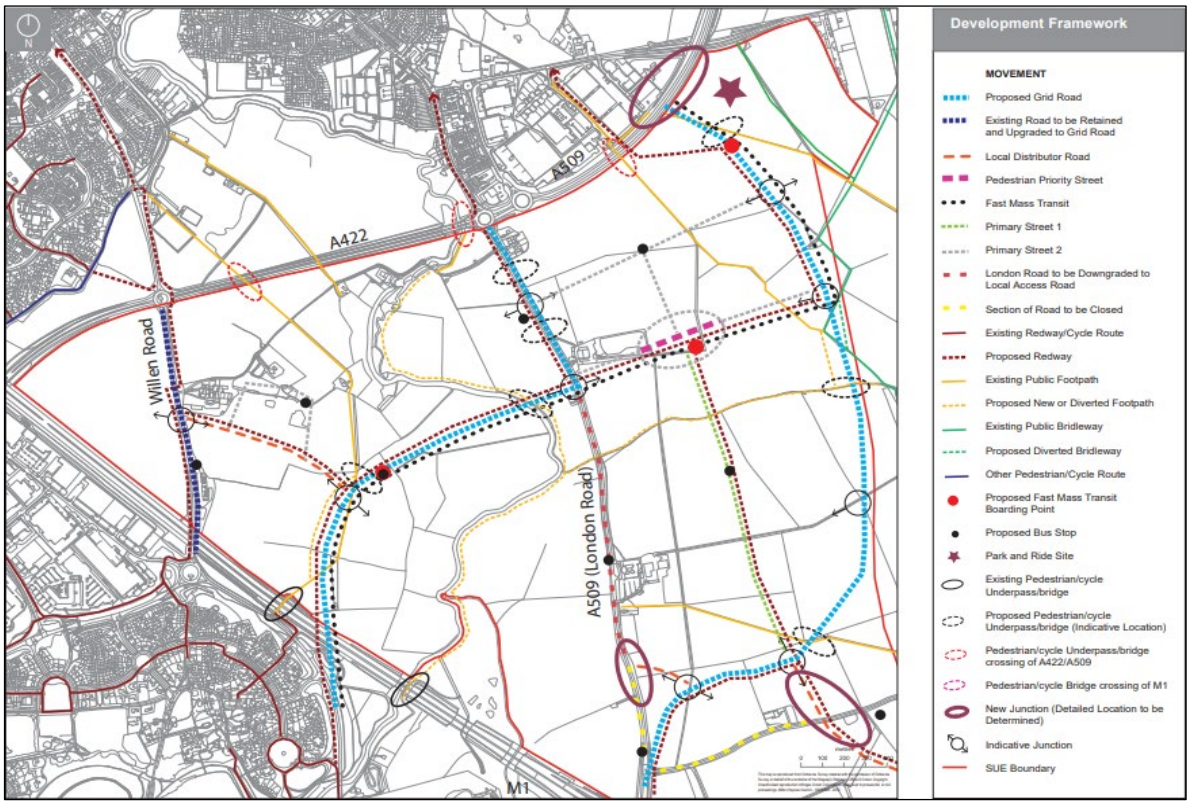
- **"Milton Keynes East is intended to feel and operate akin to a new settlement with its own name, identity and a level of self-sufficiency similar to places like Woburn Sands or Stony Stratford in terms of its amenities and community facilities. The area should have a single masterplan guiding the creation of an overall place identity that shapes the finer grain character areas within it and which is sufficiently distinctive from other places nearby. The amounts and disposition of the retail offering and other community facilities should**

contribute to this "single sense of place", with a central pedestrian-prioritised Community Hub offering a suitable scale and range of retail units, supplemented by smaller local centres that meet immediate day to day needs as appropriate throughout the residential areas.

- **Milton Keynes East will become a sustainable, high quality and thriving new community. It will be a place with a unique identity which can complement, but be distinct from, adjoining towns and villages. It will be an exemplar of modern town planning that can take forward the proud and successful legacy of place-making locally. It will be based upon a bespoke masterplan-led approach to create a new settlement for the 21st century that will be sustainable, successful and prosperous in its own right. It will integrate well with existing communities, respond to local context whilst also being future proofed to accommodate new means of mobility and ways of living.**
- **It will be designed to foster a strong sense of community and belonging, providing civic spaces for community interaction and building, a range of new homes of varying styles and densities, together with space for local existing and new businesses to thrive. It will be a welcoming and sensitively designed environment, working with the existing landscape, topography and natural assets to provide a strong network of connected green spaces whilst also protecting the identity and integrity of existing local villages. It will provide a wide range of new services and facilities for the benefit of new and existing communities. It will prioritise active travel and sustainable modes of transport above private cars. Strong internal connectivity will be a key defining characteristic whilst facilitating strategic through movement of traffic that avoids conflicts with places which are for the enjoyment of people and habitats for wildlife."**

3.37 The SPD document provides a movement framework for the MKE area, as shown in **Figure 3.2**.

Figure 3.2: Movement Framework for Milton Keynes East



Source: Figure 4.2a Movement Framework; Milton Keynes East Strategic Urban Extension Development Framework, SPD (March 2020)

3.38 The movement framework identifies the existing Willen Road, which forms the western boundary of the main land parcel of the Site, being retained and upgraded to grid road standard. It will link to a new grid road by means of a local distributor road through the Site.

3.39 Further improvements to Willen Road as part of the movement framework include the provision of a redway route along the western and eastern sides of the road. A further redway is to be provided through the Site in conjunction with the new local distributor road.

3.40 The movement framework also identifies the provision of bus stops on Willen Road and within the Site itself, as well as the provision of a new pedestrian / cycle underpass / overbridge across the A422 connecting the Site to Newport Pagnell.

3.41 A summary of the street hierarchy outlined as part of the movement framework is provided in **Figure 3.3**.

Figure 3.3: Street Hierarchy

DESIGN REQUIREMENTS	GRID ROAD	LOCAL DISTRIBUTOR	PEDESTRIAN PRIORITY STREET	PRIMARY STREET 1	PRIMARY STREET 2	Downgraded A509
Purpose	Strategic route carrying through traffic, including mass transit. Provide main point of access to development parcels/ neighbourhoods.	Through traffic. Provide access to smaller development parcels and areas of neighbourhoods.	Access to community hub and housing. Pedestrian friendly street, accommodating mass transit and segregated cycle movement. At junction with Primary Street 1, traffic diverted around a central square..	Positioning maximises ease of access to community hub for pedestrians and cyclists. Access to community hub and housing. Designed to create walkable neighbourhoods that prioritise cycling and walking.	Access to housing and community hub.	Access to housing. Continuous route for cyclists and pedestrians but not vehicles.
Carriageway width	7.3 m (single carriageway)	6.75 m	6 m	6 m	5.5 m	As existing
Design speed	50-60 mph	30 mph	20 mph	20 mph	20 mph	20 mph
Redway	Yes, except where more direct alternative routes are provided.	Yes	Yes	Yes	No	No
Footway	No	No	Yes	Yes	Yes	Yes
On-street parking	None	None	In designated bays	In designated bays	Yes - to be designed into the street layout.	Yes - to be designed into the street layout.
Verge	Verge equivalent to landscaped grid road reserve	2 x1 m (min)	2 x 5 m	2 x 2.5 m	To be determined at planning application stage.	To be determined at planning application stage.
Setback / width of privacy strip or garden to front of properties	n/a	n/a	0-3 m	3 m	3 m	1-3 m
Junctions/crossings	Roundabout or paired T-junctions Pedestrians and cyclists to cross via green bridge or underpass	At grade junctions and pedestrian crossings.	At grade junctions and pedestrian crossings.	At grade junctions and pedestrian crossings.	At grade junctions and pedestrian crossings.	At grade junctions and pedestrian crossings.
Relationship to development	60-80m grid road corridor with no direct frontage onto the grid road.	No direct frontage onto distributor road.	Development to front the street.	Development to front the street.	Development to front the street.	Development to front the street.

Source: Table 4.2 Street Hierarchy; Milton Keynes East Strategic Urban Extension Development Framework, SPD (March 2020)

3.42 The SPD identifies that public rights of way should be retained, wherever possible and that electric charging points should be provided for each dwelling, along with rapid and fast charging points at key locations, including local centres, employment areas and schools.

Milton Keynes Council, Parking Standards SPD (January 2016)

3.43 This SPD sets out the development-related parking standards for Milton Keynes. These standards include requirements for disabled car drivers, cycles, and powered two-wheelers.

3.44 The SPD incorporates an update of relevant aspects of Milton Keynes Council's New Residential Development Design Guide (2012) Supplementary Planning Document (SPD) to provide a single source of information to inform parking provision in Milton Keynes. Whilst the New Residential Development Design Guide will remain valid, elements relating to parking have been superseded by this document. Where there are discrepancies, it is the Parking Standards SPD that will form the basis for determining planning applications from a parking perspective.

3.45 Parking standards are based on a zonal system. In accordance with the SPD, the Site is located in Zone 4, as it is largely rural. However, taking account of the MKE development and the description of the parking zones, the MKE area (including the Site) will fall into a different parking zone category (Zone 3). The future parking zone classification and the parking standards to be applied will need to be agreed with MKC.

Car Parking Standards

3.46 The vehicle parking standards relevant to the Site for Zone 3 have been extracted from the SPD and are summarised in **Table 3.1**, respectively.

Table 3.1: Zone 3 Vehicle Parking Standards (Milton Keynes Council, Parking Standards, SPD (January 2016)

Use Class	Unit Mix / Age Group	Vehicle Parking Standards	Notes
C3 Residential Dwellings (per unit)	1 bedroom dwellings	1 + 0.33 unallocated	N/A
	2 bedroom flat	1 + 0.75 unallocated	
	2 bedroom dwellings	2 + 0.25 unallocated	
	3 bedroom dwellings	2 + 0.5 unallocated	
	4+ bedroom dwellings	2 + 0.5 unallocated	
D1c Education Establishment	Pupil age 4-7 years	1 per 1 FTE staff + 1 drop off space per 6 pupils	Relaxation of the parking standards for drop off spaces for schools might be considered acceptable subject to local circumstances and the car journey reducing measures in an agreed Travel Plan
	Pupil age 8-11 years	1 per 1 FTE staff + 1 drop off space per 8 pupils	
	Pupil age 4-11 years	1 per 1 FTE staff + 1 drop off space per 8 pupils	
	Pupil age 8-11 years	1 per 1 FTE staff + 1 drop off space per 8 pupils	
	Pupil age 4-11 years	1 per 1 FTE staff + 1 drop off space per 8 pupils	

3.47 Car parking standards for the local centre uses will be considered against the prevailing car parking standards at the reserved matters application stage once the details of the local centre land uses are known and agreed.

3.48 The SPD document outlines the following hierarchy of preference that should be adhered to when providing car parking for new residential developments:

- **"On plot, located at the front or side of the dwelling; and**
- **On-street to the front of dwellings (either on the street itself or as part of a front parking court)."**

Electric Vehicle Parking

3.49 The SPD document provides guidance on the parking standards for electric vehicles and electric vehicle charging points for non-residential developments, as summarised in **Table 3.2** herein.

Table 3.2: Electric Vehicle Parking Standards (Milton Keynes Council, Parking Standards, SPD (January 2016)

Car Spaces	Minimum Provisions
1-20	0 space
21-50	1 space, 1 electric charging point
51-100	2 spaces, 2 electric charging point
1 space and 1 charging point per 100 car parking spaces thereafter. Note: 10% of car parking provision to have passive provision to allow conversion at a later date	

3.50 It should be noted that in Plan: MK, Policy CT6 Low Emission Vehicles states:

> **"E. To maximise the use of sustainable modes of transport, new residential developments will be required to provide electric charging points, at a rate of 1 charging point per dwelling at each dwelling."**

Blue Badge Parking

3.51 The SPD document outlines that 6% of car parking spaces for non-residential uses should be suitable for blue badge holders.

Cycle Parking Standards

3.52 **Table 3.3** provides a summary of the cycle parking standards relevant to the proposed development, as detailed in the Parking Standards SPD.

Table 3.3: Cycle Parking Standards (Milton Keynes Council, Parking Standards, SPD (January 2016)

Use Class	Unit Mix / Age Group	Casual / Visitor Parking	Employee / Resident Parking
C3 Residential Dwellings (per unit)	1 or 2 bedrooms	2 per 40 units	1 per unit
	3+ bedrooms		2 per unit
	HiMOs		1 per 2 bedrooms
D1c Education Establishment	Pupil age 4-7 years	1 per year group	1 per 8 pupils + 1 per 10 FTE staff Provision for scooters parking: 5-50% of total cycle spaces
	Pupil age 8-11 years		1 per 6 pupils + 1 per 10 FTE staff Provision for scooters parking: 5-25% of total cycle spaces
	Pupil age 4-11 years		1 per 7 pupils + 1 per 10 FTE staff Provision for scooters parking: 5-25% of total cycle spaces

3.53 Cycle parking standards are also provided for local centre uses, which would be considered based on the specific uses coming forward at the reserved matters application stage.

3.54 The following guidance is provided in the SPD document in relation to cycle parking design:

- **"Cycle parking needs to be considered at the outset and long term storage for residents and employees should be within a covered, lockable enclosure;**
- **For individual houses, this could be in the form of a shed or garage. For flats and non-residential uses, either individual lockers or cycle stands within a lockable, covered enclosure are required;**

- **Cycle parking should be located close to entrances and where it is indoors, the user should not need to pass through more than one door;**
- **Short term cycle parking should be located in a prominent location close to site and/or building entrances and may need to be provided in multiple locations. It may be possible in some instances to utilise the public highway, though this would need to be sympathetic to the positioning of other street furniture and ensure that footway widths are maintained;**
- **Cycle parking should be secure, easily accessible and convenient to use. Although the Council does not prescribe a particular type of stand, those located on the highway should be consistent with existing provision. Within buildings, upright stands are not favoured as the need to lift bikes makes them more difficult to use, and indeed, may be impossible for some users. Systems which only allow one wheel to be secured will also not be supported, though innovative space saving solutions such as two tier racks, which are more practical to use, will be considered."**

Powered Two-Wheeler Parking Standards

3.55 The SPD document provides guidance on parking standards for powered two wheelers, as summarised in **Table 3.4**.

Table 3.4: Powered Two Wheelers Parking Standards (Milton Keynes Council, Parking Standards, SPD (January 2016)

All types of non-residential development	Provision
GFA of 1000sqm or more	A minimum of 2 spaces with anchorage points 1 space per 70 total car parking spaces
Minor developments GFA below 1000sqm	Case by case

Mobility Strategy for Milton Keynes 2018-2036 (LTP4), Mobility for All (March 2018)

3.56 The LTP4 was adopted in March 2018 and it sets out the transport objectives for the future up to 2036. The key transport objectives are:

- **"Support Growth and provide mobility for all – support the growth ambition of Milton Keynes and provide good connectivity throughout the Borough and beyond.**
- **Provide an effective network – provide a transport network that is well maintained, free flowing, and operating efficiently at all times.**
- **Maximise Travel Choices – maximise the use of technology and innovation to both inform the traveller and to provide travel options.**
- **Protect transport users and the environment – the safety of all transport users is a key part of this strategy as is the need to reduce transport pollution and CO2 emissions, protect the natural environment and promote improved public health and wellbeing."**

3.57 The document also outlines the potential outcomes of the objectives which will be:

- **"Reliable journey times are essential to support accurate, consistent travel planning.**
- **A transport system to support growth.**
- **Modern regulatory system – work to improve the way transport regulations support improvements in our transport system.**
- **An integrated traffic management system (UTMC) to allow swift journeys where conditions allow and selective prioritisation of traffic during peak travel periods.**
- **A well-maintained transport system – where repairs are completed quickly and to standard to support reliable journey times.**
- **A transport system that is available, well maintained accessible and safe for all users.**
- **Integrated journey planning available on smartphone devices – so that travellers stay connected on the move.**
- **Making the most of autonomous vehicles - to significantly reduce the cost of travel while increasing frequency and availability of services.**
- **Increasing Mobility as a Service – enabling transport to be provided as a service reducing the need for car ownership.**
- **Seamless integrated travel – with single payment ticketing options.**
- **Supporting and encouraging use of active modes which deliver health & wellbeing benefits.**
- **Supporting and encouraging travel patterns which minimise CO2 and other pollutant emissions.**
- **Ensuring the safety of all travellers is an essential outcome for all parts of the transport process and has proven benefits to wider health, wellbeing and economic aspects of society."**

Milton Keynes Council, A Highway Guide for Milton Keynes, A guide for developers (September 2018)

3.58 This document sets out the design considerations and minimum standards for new highways and associated infrastructure in Milton Keynes. It has been primarily produced to assist designers of new development proposals.

3.59 Based on the scale of the development and criteria set out in this document, both a Transport Assessment and Travel Plan are required to support the planning application.

3.60 Section 3.1 of this document sets out the following general principles that should be applied when designing new highway layouts and alternations or connections to existing highways:

- **"Provision must be made within all developments for vehicles to park, load and unload, and to turn around safely and conveniently. Careful design of the road layout and parking or turning areas can greatly improve the usability, convenience and overall quality of a development.**
- **Provision must be made for cycle parking which will normally be expected to be secure and covered. Locations must be visible and convenient to entrances.**

- **Street lighting will be required in all new residential developments and most commercial developments within the new city and will be considered carefully for developments located outside it.**
- **Dropped kerb pedestrian crossings should be provided at all junctions where footways cross carriageways and at any point where a footway terminates at a carriageway. Gullies and other street furniture should be kept clear in such crossings.**
- **Uncontrolled crossings of carriageways should be provided with tactile paving in accordance with DfT guidance on the use of tactile paving 2007.**
- **Vehicular accesses will not be permitted within the bellmouth of any road junction. New accesses should be designed so as to avoid bellmouth radii and existing accesses should be relocated away from new junctions. Private drives and hardstandings should not be constructed of loose material that may be carried into the highway. Where possible, adjoining crossovers should be linked to provide a single section of dropped kerb."**

3.61 This document provides a design table, which details the design standards for roads and streets of new developments in Milton Keynes. The design table is replicated herein as **Figure 3.4**.

Figure 3.4: Design Table for Roads and Streets in Milton Keynes

TYPE	NAME	SERVES	WIDTH (m)	FOOTWAY	VERGE	DESIGN SPEED mph (kph)	FORWARD VIS (m)	JUNCTION RADIUS (m)	JUNCTION SPACING[1] (m)		ACCESS		MAXIMUM GRADIENT	MIN C.L. RADIUS	TURNING HEAD
									ADJ	OPP	FROM	TO			
ROADS															
1	Primary Distributor	N/A	Refer to the Design Manual for Roads and Bridges												
2	District Distributor	N/A	Refer to the Design Manual for Roads and Bridges												
3	Industrial Distributor	250+ vph	7.3	2 x 2m	2 x 3m	30 (50)	70	15	90	40	1, 2	4	1:20 1:40 first 30m	60	N/A
4	Industrial Access	Up to 250 vph	7.3	2 x 2m	None	25 (40)	45	15	50	25	1-3	N/A	1:20 1:40 first 30m	60	9-12
5	Local Distributor	300+ Dwellings	6.75	2 x 2m	2 x 1m	30 (50)	70	10.5	90	40	1, 2	6-9	1:14 1:40 first 30m	60	N/A
RESIDENTIAL STREETS															
6	Principal Street	100-300 Dwellings	5.5[4]	2 x 2m	None	25 (40)	33	9	50	25	2, 5	7-11	1:14 1:40 first 15m	20	1-4
7	Major Street	50 to 100 Dwellings	5.5	2 x 2m	None	25 (40)	33	7.5	30	15	5, 6	8-12	1:14 1:40 first 15m	20	1-4
8	Street	25 to 50 Dwellings	4.8	1 x 2m	1 x 1.2m	20 (32)	25	6	30	15	5-7	9-12	1:14 1:40 first 10m	15	1-4
9	Minor Street	Up to 25 Dwellings	4.8	1 x 2m	1 x 1.2m	20 (32)	25	6	20	5	5-8	10-12	1:14 1:20 first 5m	10	1-4
LEVEL SURFACE STREETS															
10	Shared Street	Up to 25 Dwellings	Variable (Min 3.2)	Integrated	Min 0.5m[2]	<15 (24)	15	4	N/A	N/A	6-9	11-12	1:14 1:20 first 5m	7.5	1-4
11	Shared Drive	3 to 5 Dwellings	3.2 to 4.1	Integrated	2 x 1.2m[5]	<10 (16)	N/A	4	N/A	N/A	6-10	N/A	1:14	N/A	5-8
12	Shared Crossover	2 or 3 Dwellings	3.2	Integrated	None	N/A	N/A	45° Splays	N/A	N/A	7-10	N/A	1:10	N/A	13-17

1. Measured Centreline to Centreline. The minimum distance to the first junction on a road/street is 50m for types 1-6 or as per the relevant adjacent "ADJ" distance for types 7-9.
2. To be determined in conjunction with statutory undertakers and the Council's Highway Adoptions team.
3. Where the gradient of the redway exceeds 1:15, forward visibility of 30m should be maintained.
4. Where the road is part of a bus route the width should be increased to 6.2m.
5. Verges are required for adoptable Shared Drives. On private Shared Drives verges are not required.

NB for streets incorporating parking and for Redways see figures 3 & 4

Source: Milton Keynes Council, A Highway Guide for Milton Keynes, A guide for developers (September 2018)

Summary

3.62 The adopted land use and transport policy and guidance is clear that new development should be sustainable in form and location, seeking to promote active travel and public transport use, reducing reliance on the private car, thereby minimising the potential impact on the highway network.

3.63 The TA has been undertaken in accordance with policy and guidance, with due regard to the location of the Site now and in the future as part of the MKE SUE, and the absolute need to maximise the Site's sustainability credentials.

3.64 Detailed consideration has been given to the MKE SUE SPD in developing the transport and highway strategy for the Site and ensuring it encapsulates the SPD aspirations and integrates well with its surroundings and the wider MKE SUE.

4 MILTON KEYNES EAST TRANSPORT ASSESSMENT REVIEW (SOURCE: WSP TA (2021))

Introduction

4.1 This section of the report provides a brief review of the Milton Keynes East (MKE) Transport Assessment (TA) report published by WSP / Berkeley Homes in March 2021 as it relates to the Bloor Homes redevelopment proposals.

4.2 The TA assesses the transport impacts of the MKE development on the highway and public transport networks.

4.3 The WSP TA supports the hybrid planning application for the MKE site, which comprises:

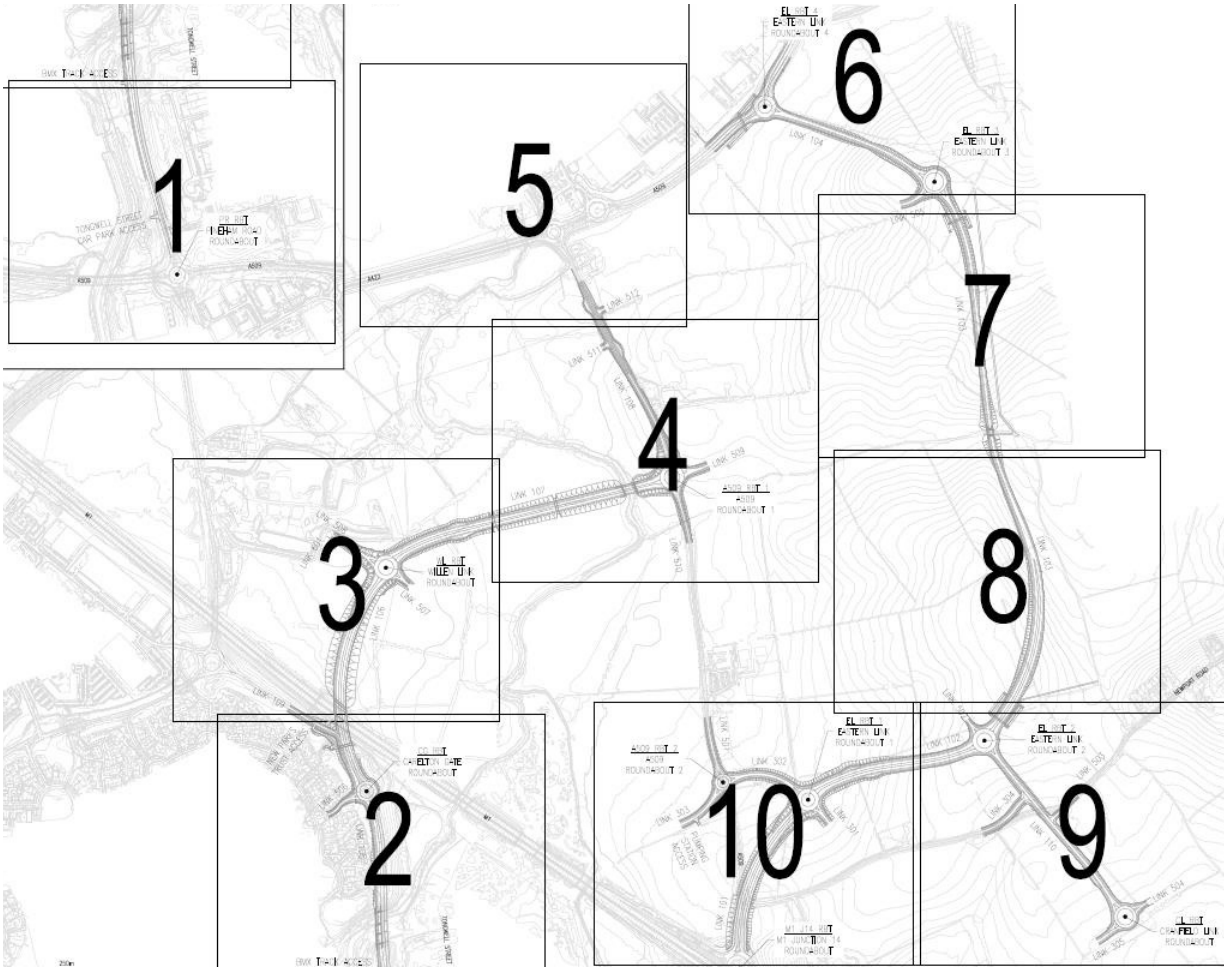
> **(i) outline element (with all matters reserved) for a large-scale mixed-use urban extension (creating a new community) comprising: residential development; employment including business, general industry and storage/distribution uses; a secondary school and primary schools; a community hub containing a range of commercial and community uses; a new linear park along the River Ouzel corridor; open space and linked amenities; new redways, access roads and associated highways improvements; associated infrastructure works; demolition of existing structures; and**
> **(ii) detailed element for strategic highway and multi-modal transport infrastructure, including: new road and redway extensions; a new bridge over the M1 motorway; a new bridge over the River Ouzel; works to the Tongwell Street corridor between Tongwell roundabout and Pineham roundabout including new bridge over the River Ouzel; alignment alterations to A509 and Newport Road; and associated utilities, earthworks and drainage works."**

4.4 It should be noted that the WSP assessment includes an uplift in MKE housing numbers compared to the Local Plan, which has been applied within the transport modelling. This uplift does mean that the transport impacts are likely to be over-estimated.

4.5 The assessment is supported by both detailed modelling relating to the Berkeley allocation and strategic modelling which assesses the wider MKE SUE allocation. This strategic modelling therefore includes an assessment of the cumulative impacts of the MKE development proposals with both the Bloor Homes and Caldecote Farm employment site development proposals.

4.6 The assessment identifies the strategic infrastructure required to deliver the wider MKE SUE allocation. The MKE application is a hybrid application, incorporating full planning permission for the required highway infrastructure as shown in **Figure 4.1** of this report.

Figure 4.1: Extract of drawing MKE-WSP-ZZ-ZZ-C-DR-0010 Rev P02 'General Arrangement for Planning Schematic Overview'



4.7 Section 6 of the MKE TA identified the junction assessment study area for which the cumulative assessments were required. The following junctions were included that are of relevance to the Bloor Homes Site:

- Marsh End Roundabout;
- Tickford Roundabout;
- Renny Lodge Roundabout;
- Tongwell Roundabout;
- Pineham Roundabout;
- M1 J14; and
- Northfield Roundabout.

4.8 The MKE TA summarises the detailed cumulative assessment work undertaken for each of the junctions based on 2031 (Local Plan) and 2048 future year scenarios based on do minimum and do something (including full MKE infrastructure) scenarios.

4.9 The high-level traffic impacts of the MKE development on the local and strategic highway network are assessed using the MKMMM. More detailed assessments of priority-controlled junctions have been assessed using Junctions 9 software package, and for signal-controlled junctions LinSig signal junction assessment software.

4.10 The assessment covers the full MKE allocation (including 800 homes within the Bloor Homes land; 650 in 2031 scenario and 800 in the 2048 scenario), 105 Ha of employment space, a secondary school, up to four primary schools (assuming one is located within Bloor Homes land) and a community hub / centre including healthcare, retail and leisure facilities.

4.11 The key differences between the 2031 and 2048 Do-Something (including mitigation) traffic flows compared to the Do-Minimum, relevant to the Bloor Homes development are:

1. a decrease in traffic using Willen Road in the 2031 and 2048 Do-Something scenario morning and evening peak periods and an increase in traffic using Tongwell Street. This can be attributed to the proposed new bridge, which Tongwell Street adjoins to;
2. a decrease in traffic on the A422 between Marsh End Roundabout and the A509 (travelling away from Milton Keynes) in the morning peak in 2031 and 2048; and
3. an increase in vehicles in the 2031 and 2048 morning peak travelling towards Milton Keynes via the A509 and a decrease in traffic on the A422 (via Tickford Roundabout) in the morning peak period. The changes are due to vehicles travelling either via the eastern perimeter road of the MKE development (towards junction 14 on the M1) or via the proposed new bridge over the M1 (resulting in an increase in traffic on Tongwell Street).

4.12 Section 7 of the MKE TA considers the operation of the junctions in the 2016 baseline scenario, Section 9 considers the operation of the junctions in the 2031 and 2048 of the MKE TA Where necessary, Section 12 of the MKE TA identifies potential mitigation schemes at individual junctions, to alleviate the impacts of the wider MKE SUE allocation.

4.13 A brief summary of the operation of the junctions located within the Bloor Homes study area, along with any proposed mitigation is set out below.

Marsh End Roundabout

4.14 Table 9.6 of the MKE TA summarises the future year assessment results. They demonstrate that the existing Marsh End Roundabout layout would operate over capacity in both the 2031 and 2048 Do Minimum Scenarios and that whilst there would be an improvement in the operation of the junction in the Do Something (with MKE only mitigation) scenarios, that the junction will continue to operate over capacity.

4.15 Section 12 of the MKE TA considers the effects of the comprehensive mitigation proposed for the Marsh End Roundabout in conjunction with the Bloor Homes / Caldecote Farm employment site proposals. Table 12.6 of the MKE TA summarises the results of this further assessment showing that with the additional improvements in place the Marsh End Roundabout would operate with spare capacity in the future year Do-Something scenarios and concludes that with the:

> **"…improvements to the junction are considered capable of accommodating the traffic associated with the proposed MKE development."**

4.16 It demonstrates that in the future Marsh End Roundabout the proposed junction improvements coupled with the wider MKE infrastructure improvements will satisfactorily address the existing capacity constraints associated with this junction and will be able to accommodate the future MKE allocation development trips.

Tongwell Roundabout

4.17 Table 9.7 of the MKE TA summarises the future year assessment result for Tongwell Roundabout. They demonstrate that for the Tongwell Roundabout, the junction is forecast to operate within capacity in both the 2031 and 2048 Do Minimum and Do Something Scenarios. The introduction of the development combined with the re-routing of traffic and the alterations to the Tongwell Street corridor results in a lower demand at the junction.

4.18 The MKE TA concludes that:

> **"Due to the improvements in operation at the junction, it is considered that no further assessments of the Tongwell Roundabout are required."**

Tickford Roundabout

4.19 Table 9.8 of the MKE TA summarises the future year assessment results for Tickford Roundabout. For Tickford Roundabout, the junction is forecast to operate within capacity for the 2031 Do Minimum scenario in the morning peak hour. However, in the evening peak hour, the A422 arm will operate over capacity. The 2031 Do Something results, show that the junction performance improves and would operate within capacity.

4.20 The 2048 Do Minimum scenario shows that the junction operates at or over capacity in the morning peak hour. In the evening peak hour, the A422 arm only operates over capacity; however, would operate within capacity in both evening peak hour. Similar to the 2031 results, the 2048 Do Something scenario indicates that junction capacity is improved and would operate within capacity.

4.21 Due to the operational improvements observed, no further assessment is recommended in the MKE TA.

Renny Lodge Roundabout

4.22 Table 9.10 of the MKE TA summarises the future year assessment results for Renny Lodge Roundabout

4.23 Renny Lodge Roundabout is forecast to operate within capacity in both the 2031 and 2048 Do Minimum and Do Something Scenarios.

Pineham Roundabout

4.24 Table 9.12 of the MKE TA summarises the future year assessment results for Pineham Roundabout. The 2031 Do Minimum outputs show that the junction is forecast to operate within 'acceptable' thresholds, albeit operating slightly over capacity on the Portway (E) arm in the morning peak and on Tongwell Street (N & S) in the morning evening peak.

4.25 The 2031 Do Something scenario evening peak hour shows that the A509 (W) approach will operate over capacity. In the 2048 Do Minimum and Do Something scenarios, the junction is forecast to operate over capacity in both the morning and evening peak hours, increasing queuing and delays accordingly.

4.26 Pineham Roundabout is located at the southern end of the proposed upgrades to the Tongwell Street corridor and provides a link with the new M1 bridge; as such it forms a key junction for the MKE site. The Do Something scenarios show a worsening of performance at the junction and a therefore a junction specific mitigation scheme has been considered, as summarised in Table 12.1 of the MKE TA.

4.27 The proposed mitigation comprises:

> **"Conversion into a partially-signalised roundabout (southern arm remains priority-controlled) Adjustments required to internal circulatory (kerb and road marking adjustments) Adjustments (three-lane exit) required on eastern arm – mirror the western arm (kerb line, central res and splitter island amendments)"**

4.28 The MKE TA has assessed the proposed mitigation and concludes that:

> **"The signals compared to the current roundabout in 2031 show betterment on the western arm but slight worsening on others (Do Something vs Do Minimum). This suggests that the signal option would be needed between 2031 and 2048. However, given the importance of this junction, it is likely that improvements would be considered early on if appropriate.**

Bloor Homes / Caldecote Farm Accesses

4.29 Tables 9.25 and 9.26 of the MKE TA summarise the future year assessment results for the proposed northern and southern access junctions to Bloor Homes Site.

4.30 The results for both access junctions demonstrate that for all assessment scenarios both junctions:

> **"would operate satisfactorily with the cumulative traffic from the MK:East allocation, and would operate with residual capacity."**

M1 J14 / Northfields Roundabout

4.31 Section 10 of the MKE TA considers the operation of the strategic road network, namely M1 J14 in conjunction with Northfields Roundabout.

4.32 The assessments demonstrate that there are existing capacity issues at these junctions, which operate as part of the same network.

4.33 The wider MKE infrastructure improvements will help to alleviate the traffic impacts of the MKE allocation development; however, the MKE TA acknowledges that the proposals will not fully address the capacity issues and further work is needed and that further discussions are required with MKC:

> **"over wider strategic delivery of improvements at this location."**

Summary

4.34 Overall, the WSP TA concludes that the MKE SUE Site will be highly accessible with the opportunities for travel on foot, by cycle or public transport. In addition, the transport impacts associated with the development can largely be mitigated accordingly with new infrastructure, improvements to the existing infrastructure (via financial contributions and the MK Tariff) and appropriate management plans.

4.35 Furthermore, it identifies that the proposed Bloor Homes northern and southern access junctions will operate within capacity in both the morning and evening peak hours in the 2031 and 2048 with Development scenarios, taking account of the wider MKE allocation.

4.36 For Marsh End Roundabout, the MKE TA concludes that the mitigation measure of full signalisation, proposed jointly by Newlands and Bloor Homes, is largely sufficient to mitigate the impacts of the wider MKE allocation, with an improvement in the overall operation of the junction.

5 DEVELOPMENT PROPOSALS

Introduction

5.1 This section of the report describes the development proposals in terms of land use, access arrangements for all modes, car and cycle parking provision, servicing, and refuse collection arrangements.

5.2 It should be noted that the development proposals have been designed to fully integrate and connect well within the surrounding area including the wider MKE SUE, to safely maximise accessibility and sustainable travel. The illustrative Masterplan layout is provided at **Appendix 2** of this report and should be reviewed alongside this section.

Development Proposals

5.3 The development proposals consist of up to 800 residential dwellings, a local centre, a primary school, sports pitches, associated car and cycle parking provision and associated highway infrastructure improvements.

5.4 The infrastructure improvements broadly comprise of two new access junctions, and associated works to Willen Road, a new pedestrian / cycle bridge over the A422 and new Redway along the northern side of the A422, connecting the new overbridge to Willen Road (N).

5.5 The illustrative masterplan for the development site (see **Appendix 2)** shows the primary school and local centre located towards the southern end of the Site where there is a road connection to the wider MKE SUE.

5.6 The exact local centre uses are not known at this Outline application stage; however, it is the intention that the local centre will serve the new local community with good walking and cycling connections, thereby reducing the need to travel distances and in particular trips by private car.

Access / Highway Improvements

5.7 The proposed Site accesses have been designed to fully integrate with the proposed Caldecote Farm employment site access / highway improvements, which have been agreed in principle by MKC Highways; however, are not yet permitted. The designs though can be adapted to exclude the Caldecote Farm employment site access, should the need arise.

5.8 The vehicular access strategy was agreed in principle with MKC Transportation in July 2021 (see paragraphs 1.16 and 5.18).

Northern Access

5.9 The northern access (see BPI 1 on **Figure 5.1** attached to this report) is located directly opposite the proposed signal-controlled access to the Caldecote Farm employment site; as such the Northern Access has been designed to fully integrate with the employment site access, in the form of a new signal-controlled crossroad junction. The signal-controlled junction arrangement will include at-grade crossings for pedestrian and cyclists. It should be noted that the existing access to Caldecote Farm (on the eastern side of Willen Road) will remain as a standalone access.

5.10 As part of the signal design for the northern access, a Traffic Regulation Order (TRO) will be made to reduce the speed limit on Willen Road between Tongwell Roundabout northwards to Newport Pagnell (Marsh End Road), from the national speed limit (60mph) to 40mph.

5.11 The junction layout is shown at **Appendix 11**.

Southern Access

5.12 The southern access (see BPI 2 on **Figure 5.1**, attached to this report) is located approximately 190 metres to the south of the northern access on the eastern side of Willen Road. This will be in the form of a three-armed signal-controlled junction and will include at-grade crossings for pedestrians and cyclists.

5.13 This access is located a short distance to the north of the existing quarry access, which will be closed in due course.

5.14 The junction layout is shown at **Appendix 11**.

Willen Road

5.15 The proposals incorporate widening Willen Road (S) to a two-lane dual carriageway from the Marsh End Roundabout south towards the Tongwell Roundabout, tapering down to a two-way single carriageway on the approach to the M1 overbridge. This accords with the aspirations of the MKE SPD to upgrade Willen Road to grid road status.

5.16 These proposals also incorporate the relocation of the existing Willen Road (S) bus stops further north along Willen Road (S), in proximity of the existing Caldecote Farm access. The southbound bus stop will be located circa 75 metres and the northbound bus stop circa 60 metres to the south of the site access (see **Figure 5.1**, attached to this report).

5.17 The proposed Willen Road widening improvements are shown as BPI 3 on **Figure 5.1** (attached to this report) and in more detail at **Appendix 11**, in conjunction with the proposed Site accesses. These proposals have been jointly designed with Newlands in conjunction with the Caldecote Farm employment site proposals.

5.18 These improvements have been agreed in principle by MKC Highways, subject to detailed junction capacity assessments.

5.19 The Willen Road proposals accord with the following Plan:MK policy requirements:

1. Policy CT8 (Grid Road Network), to use opportunities to extend the grid road system and super redway network into any major new development.
2. Policy INF1 (Delivering Infrastructure), to deliver the necessary on and off-site infrastructure required to support the development.

Stage 1 Road Safety Audit

5.20 A Stage 1 Road Safety Audit of the proposed highway improvements / access junction layouts is currently being undertaken and will be submitted to MKC once completed.

Southern Primary Distributor Road

5.21 The Site's southern primary distributor road will link to the wider MKE SUE area to the east (see BPI 4 on **Figure 5.1**, attached to this report). This accords with the aspirations of the MKE SUE SPD.

5.22 This access road will have a carriageway width of 6.75 metres, with three metre redways running along both sides, connecting to the proposed redway on the eastern side of Willen Road at its western end, and the new redway to be delivered as part of the strategic HIF infrastructure improvements at its eastern end. The preliminary design of the access road is provided at **Appendix 12**.

Pedestrian and Cycle Access

5.23 The proposals incorporate significant pedestrian and cyclist enhancements ensuring that the development will have good connectivity with the surrounding areas, in accordance with NPPF Policy 112(a) and Policies CT1 (Sustainable Transport Network), CT2 (Movement and Access) and CT3 (Walking and Cycling) of Plan: MK and the aspiration of the MKE SUE SPD.

5.24 These pedestrian and cyclist enhancements include:

- The Willen Road northern and southern accesses with full crossing facilities.
- Willen Road redways (see BPI 6 on **Figure 5.1**, attached to this report).
- An internal route connecting the Site with the redway and Toucan crossing at Marsh End Roundabout (to be delivered jointly with the proposed Caldecote Farm employment site).
- To the north of the Site, a new pedestrian and cyclist bridge over the A422 Monks Way (see BPI 5 on **Figure 5.1** (attached to this report) and preliminary design at **Appendix 13**).
- To the south of the Site a connection to the wider MKE SUE.
- An internal connection to existing Footpath FP014.
- An internal Greenway providing a north to south pedestrian and cyclist link (see BPI 8 on **Figure 5.1**, attached to this report).
- Potential signalised pedestrian crossing on the northern arm of Marsh End Roundabout (see BPI 7 on **Figure 5.1**, attached to this report).

5.25 The proposed pedestrian and cyclist bridge over the A422 accords with the aspirations of the MKE SUE SPD (see BPI 5 on **Figure 5.1**, attached to this report).

5.26 The indicative masterplan layout (see **Appendix 2**) illustrates the location of the overbridge to the north of the main section of the Site and an indicative design is provided at **Appendix 13**.

5.27 The overbridge has been located to align with various constraints (existing sewer and easements) and required gradients to ensure inclusivity. As illustrated, this is slightly to the east of the Moulsoe Footpath FP014, and a slight diversion may be required. This will offer a safer crossing of the A422 than existing footpath and will cater for both pedestrians and cyclists, rather than pedestrians only, thereby representing a significant enhancement, which will benefit existing and future users.

5.28 The internal road layout will be designed in accordance with MK Design Guidance and the MKE SUE SPD. The internal roads will provide easy and safe access for pedestrians and cyclists, and for motorised vehicles.

5.29 The masterplan includes a Greenway to provide a segregated pedestrian and cyclist route through the development, connecting with the A422 overbridge, as an alternative to the Willen Road redways.

5.30 The proposals accord with the following Plan:MK requirements:

1. Policy SD9 (General Principles for Strategic Urban Extensions) to integrate the Strategic Urban Extension with the existing built-up area.
2. Policy SD12 (MKE SUE) to deliver a network of segregated, and where appropriate grade separated, new and enhanced footpaths and cycleways to connect to existing routes beyond the site, to include provision of appropriate pedestrian and cycle crossings of the A422.
3. Policy INF1 (Delivering Infrastructure), to deliver the necessary on and off-site infrastructure required to support the development.
4. Policy CT3 (Walking and Cycling) of Plan: MK by extending the existing redway provision.

Public Transport Strategy

5.31 As previously mentioned, the Site is accessible by public transport, with bus stops (serving routes C1 and C10) located on Willen Road within acceptable walking distances. These stops are proposed to be relocated further north along Willen Road, between the northern and southern site accesses.

5.32 In formulating this public transport strategy, it is important to understand the background to MKC's public transport strategy and MKC's requirements for new developments.

5.33 MKC uses funding (to be collected via the Sustainable Transport allocation from the Tariff) to support Demand Responsive Transport (DRT) in the short / medium term throughout MKE (including Bloor Homes Site), instead of a fixed service, as it is more flexible and more likely to result in a commercially viable route in the future once the critical mass of people is achieved and when the appropriate infrastructure is in place and fully operational.

5.34 No funding is required to support a transport route once it becomes commercially viable with the patronage established through the DRT. The monies in the Sustainable Transport allocation will therefore only be used to support DRT.

5.35 Currently, DRT collects people from close to their home, within half an hour of a calling in urban areas, and one hour of calling in rural areas, and delivers them to their destination.

5.36 The longer-term aspiration is for DRT to be more localised, bringing people to the main network (either BRT or MRT). This is reliant on these 'Transfer Networks' being implemented, with a quick transfer time of a few minutes, therefore becoming quicker and more efficient than DRT undertaking the full journey. This in turn would improve the efficiency of the DRT, whereby it is required to make localised journeys only.

5.37 The Transfer Network is in its infancy; however, a timescale of circa 15 years is possible, which would work well with the full delivery timescales of the wider MKE allocation of 20+ years.

5.38 With regard to the provision of infrastructure within developments, MKC are seeking the delivery of level access platforms along key radial routes through developments and potentially the associated poles, as this establishes the principle of bus stops and a bus route and reserves the land for the introduction of these at the right time. The delivery of the remaining infrastructure and the routes could then potentially be funded through the Sustainable Transport Allocation in the Tariff.

5.39 To support a reduction in car use, public transport provision will need to be easily accessible, reliable and frequent. The provision of high-quality public transport links through, and to the Site, will be integral to the success of the public transport strategy. These links will serve the new development and provide access to Milton Keynes town centre as well as the town's main employment areas.

5.40 In terms of the proposed public transport strategy for the Bloor Homes Site, the following measures are proposed:

- Appropriate bus infrastructure will be incorporated within the design of the development, in accordance with Table 4.2 of the MKE SPD and the Highway Guide for Milton Keynes. The internal road network has been designed to accommodate bus routes and bus stops. The northern access road will have a minimum carriageway width of 6.2 metres in accordance with the requirements of the Design Guide to facilitate bus movement and the southern access road has been designed with a carriageway width of 6.75 metres, which is also suitable.
- The southern access road will connect with the wider MKE, and the new grid road / potential future MRT.
- Information will be made easily available to help promote the use of public transport within the local community. For example, the provision of high-quality public transport maps and timetable information to all new residents and employees.
- The Travel Plan will include other actions and measures to encourage travel locally and by sustainable modes, as against the private car.in the future to in order to minimise travel by private car.

Figure 5.2: Indicative Bus Stop Locations

5.41 The public transport strategy for the development site was agreed in principle with MKC on 22 July 2021.

5.42 The proposals accord with the following Plan:MK requirements:

1. Policy INF1 (Delivering Infrastructure), to deliver the necessary on and off-site infrastructure required to support the development.
2. Policy CT1 (Sustainable Transport Network) to promote transport choice.
3. Policy CT2 (Movement and Access) to integrate the development with existing sustainable transport network, provide safe, suitable and convenient access for all potential users and to offer maximum flexibility in the choice of travel modes.
4. Policy CT5 (Public Transport), to design developments to meet the needs of public transport operators and users.

Cycle Parking

5.43 The quantum of cycle parking spaces provided for all use classes of the development will be provided in accordance with the standards outlined in Milton Keynes Council, Parking Standards SPD (January 2016). Specific details will be provided within the reserved matters applications.

Vehicle Parking

Car

5.44 The quantum of car parking spaces for all use classes of the development will be provided in general accordance with the standards outlined in Milton Keynes Council, Parking Standards SPD (January 2016).

5.45 The Site is currently located in Zone 4, as it is a largely rural area, which would allow for a higher level of parking to reflect the lower level of accessibility to local facilities. However, the MKE SUE framework identifies that lower levels of parking should be provided to reflect the accessibility improvements that will come forward with the Site such as redway and bus connections to local facilities. The framework does not, however, quantify or provide guidance in terms of parking standards.

5.46 Taking into account the MKE development and the description of the parking zones, it is likely that the MKE area (including the Bloor Homes Site) will fall into a different parking zone category (Zone 3). The future parking zone classification and the parking standards to be applied will be discussed and agreed with MKC at the reserved matters application stage.

5.47 Main streets will be kept free of parking as appropriate through the implementation of waiting restrictions, whilst the implementation of traffic calming measures will promote lower speeds and pedestrian and cycle safety and generate less air and noise pollution.

5.48 The design and management of parking spaces for the development site will be provided in the reserved matters planning applications and Car Parking Management Plans (CPMP's) can be conditioned as part of any future applications, if required, particularly for the primary school and local centre.

Electric Vehicle Charging

5.49 The provision of Electric Vehicle Charing Points (EVCPs) will be provided in accordance with the guidance outlined in Plan:MK 2016-2031, which states that new residential developments will be required to provide electric charging points at a rate of one charging point per dwelling.

5.50 This provision will also meet the requirements of the MKE SUE SPD, which seeks the provision of an ECVP for each dwelling, along with rapid and fast charging points at key locations, including local centres and schools.

5.51 The commitment to provide electric vehicle charging specifically accords with the requirements of Plan:MK Policies CT2 (Movement and Access) and CT6 (Low Emission Vehicles).

Powered Two-Wheelers

5.52 Provision for powered two-wheelers will be made in accordance with the guidance outlined in the Milton Keynes Council, Parking Standards SPD (January 2016).

Blue Badge

5.53 The provision of blue badge holder parking spaces will be provided in accordance with the guidance outlined in the Milton Keynes Council, Parking Standards SPD (January 2016). The SPD document outlines that 6% of car parking spaces for non-residential uses should be suitable for blue badge holders.

Car Parking Management

5.54 The design and management of parking spaces for the development will be provided in future reserved matters planning applications, with Car Parking Management Plans (CPMP) being Conditioned if necessary.

Servicing and Refuse Access

5.55 The proposed site accesses have been designed to accommodate large refuse vehicles, delivery vehicles and fire tenders. The internal roads of the proposed development will be designed to accommodate similar vehicles at the reserved matters stages.

5.56 Servicing and delivery vehicles associated with the primary school and local centre are likely to use the southern access, whilst servicing and delivery vehicles associated with the residential dwellings will use both accesses.

5.57 Sufficient servicing and delivery facilities will be provided for the development in accordance with MKC's guidance. The number of servicing and delivery trips to and from the development is estimated within this TA report (see **Section 6**). If required, a Servicing Management Plan (SMP) can be prepared for the reserved matters applications.

5.58 Residential refuse collected will be from kerbside throughout the Site, with access via Willen Road, or possibly from the wider MKE SUE via the southern access road.

5.59 For the residential component, a total of 11 and 21 servicing and deliveries trips (arrivals) are forecast for the morning and evening peak hours respectively. The forecast servicing and delivery trips will mostly consist of small to medium sized vans relating to letter and parcel/home deliveries, with a small number of larger vehicles collecting the general and recycling waste.

5.60 The scheme has been designed to allow full access for emergency vehicles.

Framework Travel Plan

5.61 A separate Framework Travel Plan (FTP) report is submitted as part of this planning application.

5.62 The FTP is intended to provide an overarching site-wide framework for the promotion of travel by sustainable modes for the site and would seek to raise awareness amongst residents/users of the accessibility of the Site via sustainable travel modes, as well as the proximity of local services and amenities, which could be conveniently accessed on foot / cycle. The FTP incorporates key objectives into the delivery of site-specific principles and initiatives.

Summary

5.63 The proposals incorporate:

1. Up to 800 residential dwellings.
2. Primary school.
3. Local centre.
4. Sports pitches on land to the north of the A422.
5. Car and cycle parking provision.
6. Disabled and powered two-wheeler parking provision.
7. Two new Site accesses from Willen Road.
8. Local Distributor Road connecting Willen Road to the wider MKE SUE.
9. Pedestrian and cyclist bridge over the A422.
10. Pedestrian crossing points on the northern arm of the Marsh End Roundabout.
11. New redways along Willen Road.

5.64 The development proposals take account of the wider MKE SUE and the Caldecote Farm employment site. This Site will be fully integrated and connected with the surrounding area, which will safely maximise access, and travel by sustainable modes, in accordance with the requirements of the NPPF, and Plan:MK Policies SD1 (Place-Making Principles for Development, SD9 (General Principles for SUE's), SD12 (MKE SUE), CT2 (Movement and Access) and CT3 (Walking and Cycling), CT8 (Grid Road Network) and INF1 (Delivering Infrastructure).

5.65 A range of transport measures will mitigate the impacts of the development proposals, in accordance with the requirements / aspirations of the NPPF, the MKE SUE SPD and Plan:MK Policies SD1 (Place-Making Principles for Development), SD12 (MKE SUE), CT2 (Movement and Access), CT3 (Walking and Cycling), CT5 (Public Transport), CT6 (Low Emission Vehicles), CT8 (Grid Road Network) and INF1 (Delivering Infrastructure).

5.66 Parking provision will be in accordance with MKC's standards, with the details to be addressed through reserved matters applications. The Site has been designed to provide appropriate service and delivery vehicle access, in accordance with the requirements of the NPPF and Plan.

5.67 The proposals cater for the future needs of the Site users and will encourage travel by sustainable modes of transport, supported by a Travel Plan. The public transport strategy for the Site has been discussed and agreed in principle with MKC.

6 TRIP GENERATION

Introduction

6.1 This section sets out the forecast multi-modal trip generation for the proposed development.

Residential Trip Generation

6.2 The residential trip generation for 800 dwellings has been based on the TA for the Tickford Fields Committed Development (Application Reference: 20/00133/OUTEIS).

6.3 The vehicular trip rates contained within the TA to support the planning application for Tickford Fields have been agreed with MKC to be used for this assessment. The vehicular trip rates were obtained from the TRICS database and the TRICS output is provided at Appendix E of the Tickford Fields TA, a copy of which is provided as **Appendix 14** of this TA.

6.4 The Tickford Fields TA used the following TRICS selection parameters:

- Land use: Residential.
- Category: Houses Privately Owned.
- Number of Dwellings Range 50 – 1,000 dwellings.
- Location: Edge of Town and Suburban Area.

6.5 The morning and evening peak hour and daily vehicular trip rates for Tickford Fields are summarised in **Table 6.1**. It is proposed to use these rates to establish the baseline vehicular trips for the proposed Bloor Homes residential development. It is considered that the Site is comparable to the Tickford Fields development in terms of scale and proposed land uses, it is also located close to the Site and the planning application approval is recent (May 2021).

Table 6.1: Tickford Field's Residential Vehicular Trip Rates and Trips

Development Quantum	Vehicular Trip Rates per Dwelling / Vehicular Trips								
	AM Peak (08:00 - 09:00)			PM Peak (17:00 - 18:00)			Daily (07:00-19:00)		
	Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
Vehicular Trip Rate / dwelling (Private Houses)	0.117	0.353	0.470	0.309	0.183	0.492	2.171	2.265	4.436
650 residential dwellings	76	229	306	201	119	320	1,411	1,472	2,883
800 residential dwellings	94	282	376	247	146	394	1,737	1,812	3,549

6.6 **Table 6.1** illustrates the forecast vehicular trips for 650 and 800 units, respectively. A total of circa 650 units will be built-out by 2031 and 800 units (full-build out) will be achieved by 2033 (opening year). The partial build-out of 650 units by 2031 relates to the Housing Infrastructure Funding (HIF) bid. Further details on the assessment scenarios are included in **Section 7** of this report.

6.7 The proposed residential development of up to 800 residential dwellings has the potential to result in 376 and 394 two-way vehicle trips in the morning and evening peak hours respectively.

Multi Modal Trips

6.8 The average TTW mode share data from **Table 2.7** has been applied to the forecast vehicle trips for the proposed residential development. **Table 6.2** shows the multi-modal morning and evening peak hour trips.

Table 6.2: Multi-Modal Trips By Mode

Mode of Travel	Modal Share (MSOA 004 and 007 average)	Proposed Multi Modal Trip Generation			
		Morning Peak Hour		Evening Peak Hour	
		Arrivals	Departures	Arrivals	Departures
Train	3.6%	5	14	12	7
Bus, minibus or coach	4.2%	5	16	14	8
Taxi	0.8%	1	3	3	2
Motorcycle, scooter or moped	0.9%	1	3	3	2
Driving a car or van	72.8%	94	282	247	146
Passenger in a car or van	6.4%	8	25	22	13
Bicycle	3.5%	5	14	12	7
On foot	7.1%	9	28	24	14
Other method of travel to work	0.5%	1	2	2	1
Total	**100%**	128	387	339	201

Source: Census (2011), RPS Calculations, note figures may not sum due to rounding factors.

6.9 **Table 6.2** shows that the proposed residential development is expected to generate 515 two-way person trips in the morning peak hour and 540 two-way person trips in the evening peak hour.

6.10 A total of 376 and 394 two-way vehicle trips are forecast in the morning peak hour and evening peak hour, respectively.

Primary School Traffic Generation

6.11 The development proposals include the provision of a primary school. It is anticipated the primary school could have up to two forms of entry (2FE).

6.12 The 'Pupil Product Ratio Study 2017 'Produced for Milton Keynes Council' by Cognisant Research identifies that the Pupil Product Ratio (PPR) for primary school children is 0.28 per house. The proposed development of up to 800 residential dwellings would therefore be expected to generate 224 students.

6.13 This number of students can be accommodated by a two form entry, and with the excellent active travel and bus connectivity, it is highly likely that most school trips will be by these sustainable modes with very few home-school-home (primary) trips by private car will be minimal.

Local Centre

6.14 The primary purpose of the local centre will be to serve the needs of the new local community. Again, with the good sustainable mode connectivity, there will be very few home-local centre-home (primary) trips by private car.

Vehicle Trip Distribution and Assignment

6.15 The distribution of the forecast vehicle trips associated to the two site accesses is based on the illustrative masterplan layout (included at **Appendix 2**); with 515 dwellings assigned to the northern access and 285 dwellings assigned to the southern access.

6.16 The distribution of the forecast vehicle trips across the local highway network is based on selected MSOA Areas (004 and 007 relevant to the development site) from the TTW Census destination data (2011), as set out in **Table 2.9**. These two MSOA areas cover the existing population in proximity to the Site, thus provides details of where residents currently drive to for work. The route assignment has been established using the shortest/fastest route available between the proposed development accesses and workplace destinations.

6.17 **Table 6.3** summarises the proposed route assignment for the forecast traffic generation, for both accesses, Willen Road northbound and southbound directions, and the overall (average) assignment.

Table 6.3: Proposed Route Assignment

Route	Proposed Northern Access % Assignment	Proposed Southern Access % Assignment	Overall % Assignment
Willen Road Northbound Direction			
Marsh End Road	8.1	8.1	8.1
H3 Monks Way	27.2	10.3	18.8
A422 – Renny Park Road	1.7	1.7	1.7
A422 – A509 East	4.5	4.5	4.5
A422 – A509 South – M1 South	12.0	12.0	12.0
Sub-total	**53.5**	**36.5**	**45.0**
Willen Road Southbound Direction			
Michigan Drive	4.6	4.6	4.6
Tongwell St (South Pineham RAB)	15.5	15.5	15.5
Dansteed Way	21.1	38.1	29.6
Tongwell Street – A509 – M1 North	5.3	5.3	5.3
Sub-total	**46.5**	**63.5**	**55.0**
Overall Total	**100**	**100**	**100**

Committed / Proposed Developments

6.18 The additional traffic on the local network associated with the Tickford Fields permitted development and proposed Caldecote Farm employment site, has been extracted from the respective transport reports, and included within this assessment.

6.19 This assessment does not include the impacts of the wider MKE development as agreed with MKC, with the Bloor Homes Site being considered within the wider pending MKE planning application. Further details are included in **Sections 4** and **5** of this report.

6.20 Growth factors have been applied to the existing background traffic flow data to account for growth associated with other committed developments within proximity of the Site. Details of the growth factors applied to the baseline data is included in the next section of this report.

Servicing Trip Generation

6.21 Servicing and delivery trip rates for the proposed residential uses for OGV have been extracted from the Tickford Fields TRICS outputs (see Appendix E of the Tickford Fields TA). No LGV trip rates were available from the Tickford Fields TRICS outputs, therefore LGV trip rates have been extracted from the latest version of the TRICS (v7.8.2) database, using the same selection parameters for the overall vehicle trip rates. The forecast weekday servicing trip rates are included in **Table 6.4.** A copy of the TRICS output used for the servicing trip generation is included at **Appendix 14**.

Table 6.4: Weekday Servicing Trip Rates: Residential Land Uses

Service Vehicle Type	Servicing Trip Rates / dwelling								
	AM Peak (08:00 - 09:00)			PM Peak (17:00 - 18:00)			Daily (07:00-19:00)		
	Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
OGV	0.002	0.001	0.003	0.000	0.000	0.000	0.018	0.017	0.035
LGV	0.012	0.018	0.030	0.026	0.014	0.040	0.219	0.216	0.435

Source: TRICS v7.8.2; RPS Calculations

6.22 The forecast weekday service vehicle trips for the residential land uses are provided in **Table 6.5**.

Table 6.5: Weekday Servicing Trips: Residential Land Uses

Service Vehicle Type	Servicing Trips (vehicles)					
	AM Peak (08:00 - 09:00)			PM Peak (17:00 - 18:00)		
	Arr	Dep	2-way	Arr	Dep	2-way
OGV	1	1	2	0	0	0
LGV	10	14	24	21	11	32
Total	**11**	**15**	**26**	**21**	**11**	**32**

Source: RPS Calculations

6.23 A total of 11 and 21 servicing and delivery trips (arrivals) are forecast for the morning and evening peak hours respectively. The forecast servicing and delivery trips will mostly consist of small to medium sized vans relating to deliveries; with a small number of larger vehicles collecting general and recycling waste.

Summary

6.24 This section sets out the forecast multi-modal trip generation for the proposed development for 650 units (anticipated partial build-out to coincide with the HIF bid in 2031) and 800 units (full build-out in 2033).

6.25 The residential trip generation has been based on the TA for the Tickford Fields permitted development (Application Reference: 20/00133/OUTEIS). The local travel to work mode share has been applied to the forecast vehicle trips for the proposed residential development in order to derive the multi-modal morning and evening peak hour trips.

6.26 The development proposals include the provision of a primary school and a local centre, but with the good active travel and bus facilities, the majority of trips to both destinations will be by sustainable modes with very few primary trips by private car.

6.27 The distribution of the forecast vehicle trips associated with the proposed residential units have been derived based on the illustrative masterplan layout. The assignment of the forecast vehicle trips across the local highway network is based on selected MSOA Areas (004 and 007 relevant to the development site) from the travel to work Census destination data (2011).

6.28 The additional traffic on the local network associated with the Tickford Fields permitted development and proposed Caldecote Farm employment development, are included within the assessment, as agreed with MKC.

6.29 Service vehicle trip generation has been estimated for the development proposals and is included for information purposes. The forecast servicing and delivery trips will mostly consist of small to medium sized vans relating to deliveries; with a small number of larger vehicles collecting general and recycling waste.

6.30 This section demonstrates that once fully built out, the proposed development would be expected to generate 376 and 394 two-way vehicle trips in the morning and evening peak hours respectively, without any measures or actions to encourage more sustainable travel than predicted by TRICS data.

7 TRAFFIC AND HIGHWAY ASSESSMENT

Introduction

7.1 This section of the report assesses the potential traffic and highway impacts of the development proposals on the highway network in the vicinity of the Site, including the traffic flow changes and junction analysis. The impacts of the proposals in terms of existing and proposed servicing and refuse collection arrangements are also considered.

Highway Assessment

7.2 The effects of the development on the surrounding highway network have been assessed for the weekday morning and evening peak hours for the existing and future scenarios. The assessment scenarios are:

- **2021** Baseline Scenario – existing traffic AM and PM peak hour.
- **2031** (partial build-out of 650 units, linked with the HIF Funding Bid):
  - Without Development – future baseline traffic which includes the permitted / committed developments AM and PM peak hour.
  - With Development – future baseline traffic with the development proposals AM and PM peak hour.
- **2033** (full build-out of 800 units):
  - Without Development – future baseline traffic which includes the permitted / committed developments AM and PM peak hour.
  - With Development – future baseline traffic with the development proposals AM and PM peak hour.
- **2041** (For M1 and Northfield Junctions only):
  - Without Development – future baseline traffic which includes the permitted / committed developments AM and PM peak hour.
  - With Development – future baseline traffic with the development proposals AM and PM peak hour.

7.3 Traffic flow diagrams for the various scenarios are provided in **Appendix 9**.

Traffic Growth

7.4 TEMPRO (v7.2) Growth factors have been applied to the existing background traffic flow data (2019) in order to devise the future year traffic flows.

7.5 Traffic associated with the Tickford Fields committed and Caldecote Farm proposed developments have been specifically accounted for as part of the assessment and added to the observed/baseline traffic flows, as agreed with MKC.

7.6 The application of the TEMPRO growth factors takes account for other committed developments in the locality of the site. The DfT traffic growth methodology will be applied to the observed traffic flows using forecast growth factors from TEMPRO version 7.2 and the NTM.

7.7 The growth factors have been derived by calculating the average morning and evening peak growth factors for all 4 MK Zones (2, 4, 7 and 17) where traffic data sources are located. For MK Zones 4, 7 and 17, urban areas and all road types were selected. For MK Zone 2, rural area and all road types were selected. As the NTM dataset only extends up to the period to 2040, the growth factors selected include all areas and all road types. **Table 7.1** provides a summary of the growth factors that have been used.

Table 7.1: TEMPRO Growth Factors

Period of Traffic Growth	TEMPRO Growth Factor	
	AM	PM
2018 - 2021	1.0465	0.1462
2019 – 2021	1.0309	1.0307
2021 - 2031	1.1199	1.1263
2021 - 2033	1.1408	1.1482
2021 - 2041	1.2065	1.2139

Traffic Flow Changes

7.8 **Table 7.2** compares the two-way traffic flow on the arms of each of the study area junctions for the 2033 scenario, without (w/o) and with the forecast Bloor Homes development traffic and the resultant percentage change.

7.9 **Table 7.2** illustrates that even though some of the junction arms will experience more than a 5% increase in traffic flows, because of the development proposals, the overall *total* changes in junction flows are less than a 5% increase between the 2033 without and 2033 with scenarios, except for Tongwell Roundabout where there is an increase in 5.6% in the morning peak hour and an increase of 7.6% in the evening peak hour.

7.10 The greatest increase in traffic for a single arm is for Willen Road (S) at Marsh End Roundabout, in the morning peak hour, where there is an increase in 134 vehicles (21%), resulting from the proposed development. The results of the detailed assessments are summarised in **Table 7.2**.

Table 7.2: Traffic Flow Changes

Junction	Arm	Vehicle Flows (vehicles) / Percentage Change					
		AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
		2033 w/o	2033 With	% Change	2033 w/o	2033 With	% Change
Marsh End RAB	A422 (W)	1,060	1,080	+1.9	2,115	2,168	+2.5
	Willen Rd (N)	1,182	1,190	+0.6	698	718	+2.9
	A422 (E)	2,200	2,217	+0.8	1,473	1,518	+3.0
	Willen Rd (S)	639	773	+20.9	1,064	1,134	+6.5
	Total	**5,082**	**5,260**	**+3.5**	**5,351**	**5,538**	**+3.5**
Tickford RAB	A422 (W)	1,172	1,223	+4.4	2,260	2,286	+1.2
	B526 (N)	835	835	0.0	534	534	0.0
	A509 (E)	1,993	1,999	+0.3	1,430	1,446	+1.1
	A509 (S)	755	766	+1.5	1,327	1,357	+2.2
	Total	**4,756**	**4,824**	**+1.4**	**5,552**	**5,623**	**+1.3**
Renny Lodge RAB	A509 (W)	1,080	1,098	+1.6	2,101	2,110	+0.4
	Renny Park Rd (N)	274	275	+0.6	445	449	+0.9
	A509 (E)	1,830	1,834	+0.2	1,097	1,108	+1.0
	Total	**3,184**	**3,207**	**+0.7**	**3,643**	**3,668**	**+0.7**
Tongwell RAB	Michigan Dr	96	101	+4.5	511	523	+2.2
	Willen Rd (N)	1,664	1,813	+8.9	726	803	+10.6
	Tongwell St (S)	1,257	1,276	+1.5	720	772	+7.1
	Dansteed Way	530	555	+4.8	776	843	+8.6
	Total	**3,548**	**3,746**	**+5.6**	**2,733**	**2,940**	**+7.6**
Pineham RAB	A509 (W)	1,102	1,102	0.0	1,588	1,588	0.0
	Tongwell St (N)	1,025	1,084	+5.7	976	1,007	+3.1
	A509 (E)	2,305	2,310	+0.2	950	963	+1.4
	V11 (S)	986	1,001	+1.5	1,011	1,050	+3.8
	Total	**5,418**	**5,496**	**+1.4**	**4,526**	**4,608**	**+1.8**
Northfield RAB	A509 (W)	1,064	1,079	+1.4	1,856	1,864	+0.4
	A509 (N)	3,955	3,960	+0.1	2,162	2,175	+0.6
	A5130 Fen St	897	897	0.0	877	877	0.0
	H6 Child's Way	943	943	0.0	1,327	1,327	0.0
	Total	**6,859**	**6,879**	**+0.3**	**6,222**	**6,243**	**+0.3**
M1 J14 RAB	M1N (SB diverge)	278	278	0.0	287	287	0.0
	M1N (NB merge)	961	976	+1.5	1,469	1,477	+0.5

A509 (N)	1,222	1,256	+2.8	1,239	1,256	+1.4
M1S (NB diverge)	1,703	1,703	0.0	780	780	0.0
M1S (SB merge)	355	388	+9.5	402	420	+4.4
A509 (S)	2,009	2,024	+0.7	3,326	3,334	+0.2
Total	**6,527**	**6,624**	**+1.5**	**7,503**	**7,554**	**+0.7**

Junction Analysis

7.11 Full capacity assessments have been carried out for the following junctions:

- Proposed northern Site access / Willen Road / Caldecote Farm employment site access.
- Proposed southern Site access / Willen Road.
- A422 / Willen Road / Marsh End Road (Marsh End Roundabout).
- Willen Road / Dansteed Way / Tongwell Street (Tongwell Roundabout).
- A509 / A422 / London Road (Tickford Roundabout).
- A509 London Road / Renny Park Road (Renny Lodge Roundabout).
- A509 / Tongwell Street / V11 (Pineham Roundabout).
- A5130 / A509 / H6 Childs Way (Northfield Roundabout).
- M1 J14 / A509 (Broughton Roundabout Interchange).

7.12 The above roundabouts have been modelled using Junctions 9 and the signal-controlled junctions have been assessed using LinSig.

7.13 The results of the Junctions 9 assessments for the roundabouts provide an RFC (Ratio of Flow to Capacity) figure and a Queue (Q) length (number of vehicles).

7.14 The RFC determines how the arm of the junction is operating and if the RFC is 0.85 or less, the relevant arm of the junction is within its design capacity with minimal queues. An RFC greater than 0.85 and less than 1 shows that the junction is operating close to its design capacity and as such some queues and delays may start to occur. When an RFC is greater than 1, the arm of the junction is operating at or exceeding its design capacity and as a result longer delays / queues will start to form. On this basis a maximum RFC of 1 will be used as the absolute capacity of a junction. Should the level of traffic at a junction exceed this threshold then mitigation *may* be required.

7.15 For the Junctions 9 capacity assessments a 60-minute flat traffic profile has been used, as it is considered this is the most representative modelling parameter to reflect the existing traffic conditions observed on the local highway network. The analysis of the traffic flow data illustrates that the traffic flows are relatively consistently throughout the peak hours for the surveyed junctions.

7.16 **Tables 2.5** and **2.6** (see **Section 2** of this report) illustrate the traffic flows are relatively consistent between 07:15 and 09:00 hours, varying between 17,633 vehicles (07:15-08:15 hours) to 18,202 vehicles (07:30-08:30 hours). In the evening peak hour, the network flows are relatively consistent between 16:30 and 18:00 hours (between 17,144 and 17,633 flows respectively).

7.17 The results from LinSig models are expressed in Practical Reserve Capacity (PRC), which is calculated based on a maximum Degree of Saturation (DoS) on each signalised approach. The

DoS is the ratio of traffic flow to saturation capacity on a link. A DoS of 90% or below is used as a guide for a junction to operate within capacity. If the DoS is over 100 per cent , there is more traffic trying to pass through the junction than can be accommodated in a one-hour period.

7.18 LinSig also provides queue results as Mean Maximum Queue (MMQ), which is the estimated mean number of vehicles (or Passenger Car Units; PCU's) which have added onto the back of the queue up to the time when the queue finally clears at the junction stop line.

7.19 It should be noted that over-saturated junction models can sometimes over-emphasise model results due to the inability of the modelling software to accurately reflect the operations once they go over theoretical capacity; this can lead to exponential queues forming etc, which does not happen in reality with drivers either taking different routes or travelling at different times, or using alternative means of transport.

7.20 It is considered that the future 2033 and 2041 Baseline and proposed development scenarios provide the most robust assessment, as these assessment years are when the background traffic is highest and the committed developments, Bloor Homes' development are fully built-out and operational, therefore any impacts would be at their highest.

7.21 A Technical Report providing a detailed summary of the model results for all scenarios and junctions, along with a commentary, is included in **Appendix 15**. The full Junctions 9 model outputs are provided in **Appendix 16** and the full LinSig modelling reports are included in **Appendices 17 to 19.**

Northern and Southern Site accesses & Marsh End Roundabout

7.22 As the proposed northern access is located close to Marsh End Roundabout (circa 190 metres south) and the proposed southern access is located close to the Northern Access, (also circa 190 metres south), all three junctions have been modelled in the same network using LinSig software. This will help to understand the traffic impacts of the proposals on the junctions individually, but also how the junctions will interact with each other.

7.23 All three junctions could be run as part of a single Urban Traffic Control (UTC) network, but they will need to operate different cycle times. The cycle time for the northern and southern accesses has been set to 120 seconds whereas the cycle time for Marsh End RAB has been set to 60 seconds. The selected cycle times have been assessed to provide the optimum operation for the different junctions. The longer cycle times at the proposed Site accesses provides additional green time for the southbound movement which, as highlighted in the model results below, experiences some congestion particularly in the morning peak hour. It should be noted that LinSig can only model using a fixed cycle time across the peak hour. It is expected that the proposed signal timings would operate with a higher degree of efficiency via use of vehicle actuation or a traffic signal control system such as MOVA.

7.24 The model results for each of the three junctions are presented and reviewed separately in this section. However, in the first instance it is important to review the impacts on the network modelled as a whole, by comparing the PRC. A comparison of the PRC is set out in **Table 7.3**.

Table 7.3: PRC Comparison Proposed Northern & Southern Access / Marsh End Roundabout

Scenario	PRC Value	
	AM Peak Hour (08:00-09:00)	PM Peak Hour (17:00-18:00)
2031 Baseline + Committed	11.4	-6.4
2031 Baseline + Committed + Proposed Development	4.4	-6.6
2033 Baseline + Committed	0.2	-8.3
2033 Baseline + Committed + Proposed Development	0.0	-9.8

7.25 **Table 7.3** shows there would be a slight impact in the morning peak hour with the introduction of the development where the overall PRC value changes from +11.4 to +4.4 in the 2031 forecast year.

7.26 The overall PRC for the 2033 forecast remains broadly consistent with and without the development in both the morning and evening peak hour scenarios. The modelling output results illustrate that the development has negligible overall impact on capacity results. Further details are provided below. It should be noted that it is likely that there would be no southern access without the Bloor Homes development.

Proposed Northern Site access / Willen Road / Caldecote Farm employment site access

7.27 The proposed northern Site access will be in the form of a new signal-controlled arm (on the eastern side of Willen Road) of the proposed signal-controlled junction for the Caldecote Farm employment site.

7.28 As such, the northern Site access has been designed to fully integrate with the employment site access and will form a new signal-controlled crossroad junction. The signal-controlled junction arrangement will include at-grade crossing facilities to facilitate pedestrian / cycle movements. Pedestrian demand has been assumed to be 50%, i.e., the pedestrian stages will be demanded every other cycle, which means the maximum pedestrian wait time would be 120 seconds (or two minutes).

7.29 The modelling results for the 2033 scenarios are summarised in **Table 7.4**. The full model output reports for all scenarios are provided in **Appendix 17**.

Table 7.4: Proposed Northern Access – DoS (%) and MMQ (PCUs)

Link Name	Link No.	2033 Baseline + Committed		2033 Baseline + Committed + Development	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
AM Peak Hour (08:00-09:00)					
Willen Road (N)	1/1	77%	24	83%	34
	1/2+1/3	44%	8	44%	6
Willen Road (S)	2/1	31%	6	29%	5
	2/2	25%	5	27%	4
Roxhill Site Access	3/1	23%	1	18%	1
Proposed Northern Access	6/1			50%	3
	6/1			88%	6
PM Peak Hour (17:00-18:00)					
Willen Road (N)	1/1	32%	6	36%	9
	1/2+1/3	20%	3	19%	4
Willen Road (S)	2/1	48%	11	42%	4
	2/2	41%	9	41%	4
Roxhill Site Access	3/1	71%	5	63%	5
Proposed Northern Access	6/1			20%	2
	6/1			42%	2

7.30 **Table 7.4** shows that the proposed northern Site access will operate with spare capacity in the morning and evening peak hours for both assessment scenarios.

7.31 For the 2033 Baseline and Development scenario, the northern access arm of the junction is forecast to operate with 12% spare capacity and a queue of six vehicles in the morning peak hour. Willen Road (N) arm is forecast to operate with a DoS of 83% and a queue 34 vehicles for the same scenario. In reality, the total queue for this arm (40 vehicles) will be dispersed across the two lanes (plus flare) to be provided (links 1/1, 1/2 + 1/3), which provide a total capacity for up to 65 vehicles. Hence there would be sufficient capacity to accommodate the forecast queues, without blocking back into Marsh End Roundabout.

7.32 All other arms will operate with a high level of spare capacity and with minimal queuing. In the evening peak hour, all arms will operate with a high level of spare capacity and with minimal queuing.

7.33 The model results illustrate that the proposed northern Site access will operate with sufficient capacity and the traffic impact of the Bloor Homes development on Willen Road will not be severe, with a minor increase in DoS and queuing on Willen Road (N) of 6% and 10 vehicles, respectively, between the 2033 without and with Development scenario.

Proposed Southern Site access / Willen Road

7.34 The Site's proposed southern access is located approximately 190 metres to the south of the proposed northern access. This will be in the form of a signal-controlled junction and will include at-grade crossing facilities to facilitate pedestrian / cycle movements. Similar to the proposed northern access, pedestrian demand at the southern access is assumed to be 50% i.e., the pedestrian stages

will be demanded every other cycle, which means the maximum pedestrian wait time would be 120 seconds (or two minutes).

7.35 Assessments have been carried out using the LinSig modelling software for all future scenarios. It should be noted that the proposed southern access has been included within the with Development scenarios only.

7.36 The modelling results for the 2033 scenarios are summarised in **Table 7.5**. The full model output reports are provided in **Appendix 17**.

Table 7.5: Proposed Southern Access – DoS (%) and MMQ (PCUs)

Link Name	Link No.	2033 Baseline + Committed		2033 Baseline + Committed + Development	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
AM Peak Hour (08:00-09:00)					
Proposed Southern Access	2/1	N/A	N/A	53%	3
	2/2	N/A	N/A	30%	1
Willen Road (S)	3/1 + 3/2	N/A	N/A	39%	5
Willen Road (N)	5/1	N/A	N/A	87%	15
	5/2	N/A	N/A	31%	3
PM Peak Hour (17:00-18:00)					
Proposed Southern Access	2/1	N/A	N/A	27%	1
	2/2	N/A	N/A	16%	1
Willen Road (S)	3/1 + 3/2	N/A	N/A	63%	10
Willen Road (N)	5/1	N/A	N/A	37%	6
	5/2	N/A	N/A	17%	2

7.37 **Table 7.5** shows that the proposed southern Access will operate with spare capacity in the morning and evening peak hours. The Willen Road (N) arm is forecast to operate with a DoS of 87% and with a queue of 15 vehicles. In reality, the total queue for this arm (18 vehicles) will be dispersed across the two lanes to be provided (links 5/1 & 5/2), which provide a total capacity for up to 51 vehicles. Hence there would be sufficient capacity to accommodate the forecast queues on the southbound approach, without blocking back into the proposed northern access. All other arms will operate with a high level of spare capacity and with minimal queues in both the morning and evening peak hours.

A422 / Willen Road / Marsh End Road (Marsh End Roundabout)

7.38 ARCADY has been used to assess the capacity of the priority roundabout of A422 / Willen Road / Marsh End Road, for the 2021 Baseline scenario. The Junctions 9 model outputs are included in **Appendix 16**.

7.39 For the future scenarios, LinSig has been used to assess the junctions' capacity, as the junction will be signal controlled as part of the employment site development proposals. As mentioned above, Marsh End Roundabout has been assessed within the same network model as the proposed Site's northern and southern accesses. Queuing is minimal for the circulatory links, as queue limits have been applied to internal stop lines within the circulatory carriageway and queue graphs have been

analysed to ensure the internal queues clear every cycle (see full model outputs in **Appendix 17** for model results of circulatory links).

7.40 The future assessments also include a potential pedestrian crossing option for Willen Road (N) (further details below).

7.41 **Table 7.6** summarises the ARCADY model results of the capacity assessments undertaken for the 2021 Baseline scenario.

Table 7.6: 2021 Baseline

Arm	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A422 (E)	0.976	25	53.2	0.557	1	3.7
2 – Willen Road (S)	0.516	1	7.1	0.727	3	11.1
3 – A422 Monks Way	0.432	1	3.1	0.995	37	77.4
4 – Willen Road (N)	0.899	8	30.1	0.831	5	29.8

7.42 The model results for the 2021 Baseline Scenario illustrate in the morning peak hour the A422 (E) currently operates with only 2% spare capacity, Willen Road (N) operates at 90% capacity and Willen Road (S) and A422 Monks Way operate at 52% and 43% capacity. respectively. There is queuing on the A422 (E) arm (25 vehicles). In the evening peak hour, the A422 Monks Way operates at capacity (100%), whilst Willen Road (N), Willen Road (S) and the A422 (E) operate at 83%, 73% and 56% capacity, respectively. There is queuing on the A422 Monks Way arm (37 vehicles).

7.43 The LinSig morning and evening peak hour model results are summarised in **Tables 7.7 and 7.8**, respectively. The full model output reports are provided in **Appendix 17**.

Table 7.7: Marsh End Roundabout AM Peak Hour (08:00-09:00) - DoS (%) and MMQ (PCUs)

Link Name	Link No.	2033 Baseline + Committed		2033 Baseline + Committed + Development	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
Willen Road (N)	1/2+1/1	78%	8	89%	11
	1/3	59%	5	67%	6
A422 (E)	2/2+2/1	75%	10	90%	16
	2/3	67%	10	85%	15
Willen Road (S)	3/1	90%	9	87%	9
	3/2+3/3	42%	3	41%	3
A422 (W)	4/2+4/1	42%	5	45%	5
	4/3	42%	5	40%	4

7.44 **Table 7.7** shows that the highway improvements to introduce signal controls at the Marsh End Roundabout provides significant benefits for the morning peak hour by increasing capacity at the junction, as the 2021 Baseline model results show that the junction currently operates at capacity, whereas the future year assessment scenarios illustrate the junction will operate with spare capacity.

7.45 Marsh End Roundabout is forecast to operate with a minimum of 10% (Willen Road (S)) spare capacity in the morning peak hour in the 2033 Baseline (without Development) scenario. All other arms will operate with sufficient spare capacity.

7.46 For the 2033 Baseline with Development scenario, Marsh End Roundabout is forecast to still operate with a minimum of 10% (A422 (E)) spare capacity in the morning peak hour. There is a decrease in the DoS on Willen Road (S) from 90% to 87%. There is an increase in DoS and queuing on other arms, however these will continue to operate with sufficient spare capacity.

7.47 The model results in **Table 7.7** show that the impact on the junctions' operation, resulting from the proposals, is negligible.

Table 7.8: Marsh End Roundabout PM Peak Hour (17:00-18:00) - DoS (%) and MMQ (PCUs)

Link Name	Link No.	2033 Baseline + Committed		2033 Baseline + Committed + Development	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
Willen Road (N)	1/2+1/1	94%	9	89%	7
	1/3	87%	6	77%	5
A422 (E)	2/2+2/1	91%	11	98%	15
	2/3	91%	14	88%	12
Willen Road (S)	3/1	77%	10	92%	14
	3/2+3/3	35%	3	56%	6
A422 (W)	4/2+4/1	97%	24	95%	21
	4/3	98%	23	92%	18

7.48 **Table 7.8** shows that Marsh End Roundabout is forecast to operate at 98% (A422 (W)) capacity in the evening peak hour in the 2033 Baseline (without Development) scenario. Willen Road (N) and the A422 (E) will also operate at over 90% DoS, with 6% and 9% spare capacity, respectively.

7.49 For the 2033 Baseline and Development scenario, Marsh End Roundabout is forecast to still operate at a maximum 98% (A422 (E)) capacity in the evening peak hour. Whilst there is an increase in DoS and queuing on the A422 (E) and Willen Road (S), there is a decrease in DoS and queuing on Willen Road (N) and the A422 (W).

7.50 The model results in **Table 7.8** show that the impact on the junctions' operation, resulting from the proposals is negligible.

7.51 It is important to note the MKE TA identifies that the proposed Bloor Homes Northern and Southern Access junctions will operate within capacity in both the morning and evening peak hours in the 2031 and 2048 with Development scenarios. This is due to the resultant re-routing of traffic which will occur with the strategic HIF highway infrastructure and improvements. The MKE TA concludes that the mitigation measure of full signalisation, proposed as part of the Newlands planning application is largely sufficient, with an improvement in the overall operation of the junction.

7.52 Overall, in terms of the impact of the Bloor Homes development on the operation of Marsh End Roundabout, the model results show existing capacity issues, with the junction already operating over capacity in the 2021 Baseline scenario. The proposed signalisation of the roundabout, common works with the Caldecote Farm employment site, will provide the improvements required to increase the junctions' capacity. The model results between the 2033 without and with the Bloor Homes development illustrate negligible changes in the DoS and queues. It is considered that the traffic

impacts of the Bloor Homes development on the operation of Marsh End Roundabout are not severe in NPPF terms.

Pedestrian Crossing Option

7.53 Preliminary modelling has been undertaken (using the LinSig software) to test an option of providing signal-controlled pedestrian crossing facilities on the northern arm of Marsh End Roundabout.

7.54 The model shows that a queue would form at the stop line of the pedestrian crossing on the western side of Willen Road (N), which would potentially block back into the roundabout, restricting the approach flow (from A422 (W) and the clockwise circulatory flow). The model indicates a queue of one vehicle in the morning peak hour and approximately 17 vehicles in the evening peak hour. The longer queue in the evening peak hour correlates with traffic travelling out of Milton Keynes town centre.

7.55 The model does assume that the crossing is called every cycle. In reality, it is unlikely that this will happen, therefore the assessment provides a robust assessment.

7.56 Overall, the initial modelling suggests that a new signal-controlled pedestrian crossing would have an impact on the operation of Marsh End Roundabout, mostly confined to the evening peak hour.

7.57 Further discussions would need to be undertaken with MKC with regards to the impacts and possible options for a new signal-controlled crossing on Willen Road (N).

Tongwell Roundabout

7.58 The capacity of the Tongwell Roundabout has been assessed using ARCADY. **Table 7.9** provides the summary results of the capacity assessments undertaken for the 2021 Baseline scenario and the full output files are provided in **Appendix 16**.

Table 7.9: Tongwell Roundabout 2021 Baseline Results

Arm	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – Tongwell Street	0.710	2	8.2	0.338	1	3.0
2 – Dansteed Way	0.284	0	3.2	0.394	1	3.5
3 – Michigan Drive	0.070	0	3.2	0.383	1	5.0
4 – Willen Road (N)	0.818	4	11.1	0.362	1	3.5

7.59 The traffic modelling results for the 2021 Baseline Scenario illustrates the junction currently operates within capacity in the morning and evening peak hours.

7.60 **Tables 7.10** and **7.11** show the results for the 2033 Baseline and 2033 Baseline and Development for the morning and evening peak hours, respectively.

Table 7.10: Tongwell Roundabout 2033 AM Peak Hour (0800:0900) Results

Arm	2033 Baseline + Committed			2033 Baseline + Committed + Development		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – Tongwell Street	0.883	7	21.2	0.915	10	28.7
2 – Dansteed Way	0.352	1	3.7	0.371	1	3.8
3 – Michigan Drive	0.086	0	3.5	0.091	0	3.6
4 – Willen Road (N)	0.959	19	42.2	1.040	89	171.9

7.61 The traffic modelling results for the 2033 Baseline scenario morning peak hour show that Willen Road (N) will operate close to capacity (96%) and Tongwell Street at 88% capacity, without the development traffic. Any additional future traffic will therefore impact on the junction operation as reflected by the modelling results for the 2033 Baseline + Committed + Development scenario, which illustrate that Willen Road (N) is predicted to operate slightly (4%) over capacity and Tongwell Street is forecast to operate at 92% capacity.

7.62 As detailed previously, the modelling software is not able to accurate model the operation of a junction once over capacity, with queues increasing exponentially. This would not happen in reality as there would be a natural redistribution of traffic.

Table 7.11: Tongwell Roundabout 2033 PM Peak Hour (17:00-18:00) Results

Arm	2033 Baseline + Committed			2033 Baseline + Committed + Development		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – Tongwell Street	0.413	1	3.5	0.448	1	3.8
2 – Dansteed Way	0.470	1	4.1	0.521	1	4.6
3 – Michigan Drive	0.481	1	6.5	0.523	1	7.5
4 – Willen Road (N)	0.474	1	4.6	0.525	1	5.0

7.63 The traffic modelling results for 2033 illustrate that the junction will operate well within capacity in the evening peak hour for all assessment scenarios.

7.64 Overall, the modelling results demonstrate that Willen Road (N) will be operating close to capacity in the morning peak hour of the 2033 forecast year even without the addition of any development traffic from the Site. Any additional traffic from the Bloor Homes Site will therefore increase the DoS and queue lengths, particularly on Willen Road (N).

7.65 It should be noted that the modelling assessment does not take account of the future effects of the new Southern Link Road connection and alterations to Tongwell Street, which will result in a re-routing of traffic, lower demand and less congestion at the junction, as these will be delivered in conjunction with the wider MKE SUE development at a later stage.

7.66 The MKE TA forecasts (**Section 4** of this report) this junction to operate within capacity in both the 2031 and 2048 Do Minimum and Do Something Scenarios with the future highway network improvements.

7.67 Notwithstanding, potential mitigation has been considered for the Tongwell Roundabout that could be delivered earlier, if deemed appropriate, to minimise the short-term impacts of the Bloor Homes development, prior to the delivery of the wider infrastructure improvements, to achieve a standalone deliverable scheme

7.68 The benefit of such improvements would need to be considered against the likely cost and other infrastructure improvements to be delivered by Bloor Homes in conjunction with their development.

7.69 In line with previous proposals detailed in the Caldecote Farm TA, mitigation in the form of an extended 2.3 metre flare for Willen Road (N) has been assessed to ascertain any improvement in the junctions' operation, particularly for the Willen Road (N) arm.

7.70 **Tables 7.12** shows the with mitigation results for the 2033 Baseline and 2033 Baseline and Development for the morning and evening peak hours, respectively.

Table 7.12: Tongwell Roundabout 2033 Results – With Mitigation

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00-18:00)		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – Tongwell Street	0.926	11	32.6	0.448	1	3.8
2 – Dansteed Way	0.371	1	3.8	0.521	1	4.6
3 – Michigan Drive	0.091	0	3.6	0.523	1	7.5
4 – Willen Road (N)	1.006	47	94.4	0.507	1	4.6

7.71 With mitigation, the traffic modelling results for the 2033 with Development scenario, Willen Road (N) is predicted to operate at 1% over capacity (reduction from 4% over capacity without mitigation) in the morning peak hour with a queue of 47 vehicles.

7.72 In the evening peak hour, the results demonstrate that the junction will operate well within capacity.

Tickford Roundabout

7.73 ARCADY has been used to assess the capacity of the Tickford Roundabout for the 2021 Baseline scenario. The Junctions 9 model outputs are included in **Appendix 18**. **Table 7.13** provides a summary of the results.

Table 7.13: Tickford Roundabout 2021 Baseline Results

Arm	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	0.619	2	3.7	0.451	1	2.5
2 – A509 South	0.556	1	7.1	0.660	2	6.8
3 – A422 West	0.470	1	3.2	0.943	15	30.1
4 – B526 North	0.474	1	5.4	0.616	2	12.8

7.74 The traffic modelling results illustrate in the morning peak hour the junction currently operates with spare capacity. In the evening peak hour, the junction operates close to capacity with 6% spare

capacity available on the A422 West. This assessment does not take account of the committed Tickford Fields development.

7.75 LinSig software has been used to assess the future scenarios as the assessment includes the future highway improvement (as approved by MKC) for the partial signalisation of the roundabout junction. The partial signalisation has been approved in conjunction with the Tickford Fields permitted development.

7.76 The junction has been assessed to operate on a cycle times of 60 seconds. The model results for the future scenarios are presented below. However, in the first instance it is important to review the impacts on the whole junction by comparing the PRC. A comparison of the PRC is set out in **Table 7.14**.

Table 7.14: Tickford Roundabout – PRC Comparison

Scenario	AM Peak Hour (08:00-09:00)	PM Peak Hour (17:00-18:00)
2031 Baseline + Committed	3.0	-25.5
2031 Baseline + Committed + Proposed Development	-0.7	-26.8
2033 Baseline + Committed	0.1	-27.9
2033 Baseline + Committed + Proposed Development	-2.7	-29.4

7.77 The impact of the development in both 2031 and 2033 forecast years is negligible with very minor increases noted in terms of overall PRC values with the introduction of the development.

7.78 The LinSig morning and evening peak hour DoS and MMQ results are summarised in **Table 7.15** The full model output reports are provided in **Appendix 20**.

Table 7.15: Tickford Roundabout Peak Hours – DoS (%) and MMQ (PCUs)

Link Name	Link No.	2033 Baseline + Committed		2033 Baseline + Committed + Development	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
AM Peak Hour (08:00-09:00)					
B526	1/2+1/1	43%	0	45%	0
	1/3	90%	9	92%	12
A509 (E)	2/1	73%	10	68%	9
	2/2	80%	12	75%	11
	2/3	80%	12	75%	11
A509 (S)	3/2 + 3/1	78%	5	78%	5
	3/3	78%	5	78%	5
A422	4/1	54%	7	57%	7
	4/2	54%	7	57%	7
PM Peak Hour (17:00-18:00)					
B526	1/2+1/1	78%	4	79%	5
	1/3	97%	11	97%	11
A509 (E)	2/1	58%	6	54%	6
	2/2	65%	8	61%	7
	2/3	65%	8	61%	7
A509 (S)	3/2 + 3/1	90%	11	91%	12
	3/3	90%	11	91%	11
A422	4/1	115%	99	116%	106
	4/2	115%	99	116%	105

7.79 **Table 7.15** shows that the junction will operate at 90% capacity in the morning peak hour and at 92% capacity in the evening peak hour of the 2033 Baseline scenario, without the introduction of the proposed development.

7.80 For the development scenarios, the DoS and queue lengths in the morning and evening peak hours increases very slightly, with only a 1.4% and 1.3% increase in traffic flows in the morning and evening peak hours (see **Table 7.2**), respectively. As such the development impact observed in the models is negligible, with minimal resulting increases in queue lengths.

Renny Lodge Roundabout

7.81 ARCADY has been used to assess the capacity of the Renny Lodge Roundabout. **Table 7.16** provides the summary results of the capacity assessments undertaken for the 2021 Baseline scenario. The Junctions 9 model outputs are included in **Appendix 16**.

Table 7.16: Renny Lodge Roundabout 2021 Baseline Results

Arm	AM Peak Hour (08:00-09:00)			PM Peak (17:00-18:00)		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	0.744	3	6.6	0.460	1	3.2
2 – A509 West	0.369	1	2.3	0.652	2	3.9
3 – Renny Park Road	0.074	0	2.9	0.352	1	5.7

7.82 The traffic modelling results for the 2021 Baseline scenario illustrate in the morning and evening peak hours the junction currently operates with spare capacity and minimal queueing.

7.83 **Tables 7.17** and **7.18** show the results for the 2033 Base without and with Development scenarios for the morning and evening peak hours, respectively.

Table 7.17: Renny Lodge Roundabout 2033 AM Peak Hour (08:00-09:00)

Arm	2033 Baseline + Committed			2033 Baseline + Committed + Development		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	0.879	7	14.4	0.899	9	17.2
2 – A509 West	0.435	1	2.6	0.442	1	2.6
3 – Renny Park Road	0.218	0	3.7	0.221	0	3.7

Table 7.18: Renny Lodge Roundabout 2033 PM Peak Hour (17:00-18:00)

Arm	2033 Baseline + Committed			2033 Baseline + Committed + Development		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	0.548	1	4	0.554	1	4
2 – A509 West	0.683	2	4.3	0.681	2	4.3
3 – Renny Park Road	0.445	1	6.5	0.447	1	6.5

7.84 The ARCADY model results in **Tables 7.17** and **7.18** illustrate that the junction will operate with 12% spare capacity (A509 (E)) in the morning peak hour for the 2033 Baseline scenario and with 10% spare capacity in 2033 Baseline and Development scenario. For the 2033 scenarios in the evening peak hour the ARCADY results show that the junction will operate well within capacity for all assessment scenarios.

7.85 The ARCADY model results show a minimal change in the junction operation between the 2033 without and with Development scenarios, demonstrating that the Bloor Homes Site will have a negligible traffic impact on this junction.

Pineham Roundabout

7.86 The impact of the development proposals on the Pineham Roundabout has been tested using ARCADY. **Table 7.19** provides the summary results of the capacity assessments undertaken for the 2021 Baseline scenario. The Junctions 9 model outputs are included in **Appendix 16**.

Table 7.19: Pineham Roundabout 2021 Baseline Results

Arm	AM Peak Hour (08:00-09:00)			PM Peak (17:00-18:00)		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	0.855	6	10.6	0.329	1	2.2
2 – Tongwell Street South	0.606	2	6.5	0.394	1	2.7
3 – A509 West	0.480	1	3.5	0.611	2	4.1
4 – Tongwell Street North	0.403	1	2.7	0.433	1	3.4

7.87 The traffic modelling results for the 2021 Baseline scenario illustrate in the morning peak hour the junction currently operates with at least 14% spare capacity (A509 East). In the evening peak hour, the junction operates well within capacity.

7.88 **Tables 7.20** and **7.21** show the results for the 2033 Base without and with Development scenarios for the morning and evening peak hours, respectively.

Table 7.20: Pineham Roundabout 2033 AM Peak Hour (08:00-09:00)

Arm	2033 Baseline + Committed			2033 Baseline + Committed + Development		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	1.037	103	154.3	1.055	135	202
2 – Tongwell Street South	0.791	4	13.8	0.789	4	13.4
3 – A509 West	0.587	1	4.7	0.590	1	4.7
4 – Tongwell Street North	0.492	1	3.4	0.519	1	3.6

7.89 The traffic modelling results for the 2033 Baseline scenario shows that the A509 East is forecast to operate at 4% over capacity, with significant queueing, without the additional traffic resulting from the development proposals. For the 2033 Baseline and Development scenario the DoS increases, very slightly. The impact of the Bloor Homes development is negligible.

Table 7.21: 2033 PM Peak Hour (17:00-18:00)

Arm	2033 Baseline + Committed			2033 Baseline + Committed + Development		
	RFC	Queue (vehs)	Delay (s)	RFC	Queue (vehs)	Delay (s)
1 – A509 East	0.401	1	2.5	0.409	1	2.6
2 – Tongwell Street South	0.476	1	3.2	0.494	1	3.3
3 – A509 West	0.734	3	6.2	0.745	3	6.6
4 – Tongwell Street North	0.570	1	4.9	0.587	1	5.1

7.90 The traffic modelling results for the 2033 evening peak hour illustrate that the junction will operate well within capacity for all assessment scenarios, with only negligible increases in the DoS and queue lengths.

7.91 It should be noted that the percentage increase in *total* junction flows because of the development proposals is predicted to be 1.8% in both the morning and evening peak hours (see **Table 7.2**), respectively.

7.92 Pineham Roundabout was assessed within the Caldecote Farm employment site TA report using ARCADY software. The model results for the 2026 without and with Development scenarios show the junction would operate at capacity in the morning peak hour and within capacity in the evening peak hour. The model results for the 2026 background scenario show the junction is operating at 98% with a queue of 23 vehicles (A509 (E)) in the morning peak hour and at 66% capacity with a queue of 2 vehicles in the evening peak hour. In the 2026 development scenario, the DoS increases in 99%, with a queue of 30 vehicles in the morning peak hour and to 67% capacity with a queue of 2 vehicles in the evening peak hour.

7.93 For the Bloor Homes assessment, the junction capacity and queue lengths are higher in the morning and evening peak hours. This is due to higher baseline traffic flows used within this assessment for this junction.

Northfield Roundabout and M1 J14

7.94 As these two junctions are located close to each other and the traffic flows interact with each, both junctions have been modelled in the same network using LinSig. This will help to understand the traffic impacts of the proposals on the junctions individually, but also how the junctions' impact on each other.

7.95 The cycle time for both junctions has been set to 60 seconds. Both junctions can be run as part of a single UTC network. It should be noted that queue limits have been applied to internal stop lines within the circular carriageway and queue graphs have been analysed to ensure the internal queues clear every cycle (see full model outputs in **Appendix 19** for model results of circulatory links). It be should be noted that LinSig can only model using a fixed cycle time across the peak hour. It is expected that the proposed signal timings operate with a higher degree of efficiency via use of vehicle actuation or a traffic signal control system such as MOVA.

7.96 The model results for both junctions are presented and reviewed separately in this section. However, in the first instance it is important to review the impacts on the network modelled as a whole, by comparing the PRC. A comparison of the PRC is set out in **Table 7.22**.

Table 7.22: Northfield Roundabout and M1 J14 – PRC Comparison

Scenario	AM Peak Hour (08:00-09:00)	PM Peak Hour (17:00-18:00)
2021 Baseline	-39.0	-22.5
2031 Baseline + Committed	-58.7	-32.8
2031 Baseline + Committed + Proposed Development	-58.7	-33.2
2033 Baseline + Committed	-61.9	-35.2
2033 Baseline + Committed + Proposed Development	-61.9	-35.9
2041 Baseline + Committed	-71.0	-42.7
2041 Baseline + Committed + Proposed Development	-71.4	-43.4

7.97 The impact of the development in both 2031, 2033 and 2041 forecast years is negligible with very minor increases noted in terms of overall PRC values with the introduction of the development.

Northfield Roundabout

7.98 The LinSig morning and evening peak hour DoS and MMQ (PCUs) are summarised in **Tables 7.23** and **7.24**, respectively. The full model output reports are provided in **Appendix 15**.

Table 7.23: Northfield Roundabout AM Peak Hour (08:00-09:00) – Dos (%) and MMQ (PCUs)

Link Name	Link No.	2021 Baseline		2033 Baseline + Com		2033 Baseline + Com + Dev		2041 Baseline + Com		2041 Baseline + Com + Dev	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
A4145	1/1	115%	34	146%	78	145%	78	154%	91	154%	91
	1/2+1/3	115%	40	146%	92	146%	92	154%	107	154%	107
A509 (W)	3/1	82%	8	43%	5	43%	5	45%	5	46%	5
	3/2	84%	9	43%	5	44%	5	46%	5	46%	6
	3/3	45%	3	23%	2	23%	2	24%	2	24%	2
A509 (N)	4/1	72%	14	82%	11	81%	10	86%	12	86%	11
	4/2	70%	15	80%	9	81%	9	84%	11	84%	11
	4/3+3/4	85%	18	97%	34	98%	36	101%	53	101%	54
A5130 (E)	7/1	120%	34	105%	21	106%	22	108%	25	108%	25
	7/2+7/3	125%	57	108%	33	109%	34	111%	40	111%	40

7.99 The 2021 Baseline model results in **Table 7.23** show that the junction currently operates over capacity (125% DoS) in the morning peak hour and would continue to operate over capacity in the future years. The signal timings have been adjusted for the future scenarios to provide the optimum balance for the junctions' operation.

7.100 Northfield Roundabout is forecast to operate 46% over capacity (A4145) in the 2033 Baseline morning peak hour. The A5130 (E) and A509 (N) are forecast to operate 8% over capacity and at 97% capacity, respectively. The DoS remains broadly the same in the with Development scenario, with the A4145 forecast to operate 46% over capacity and with a very slight increase in DoS on the A5130 (E) to 9%, from 8%, over capacity.

7.101 For the 2041 Baseline scenario the A4145, A5130 (E) and A509 (N) are forecast to operate at 54%, 11% and 1% over capacity, respectively.

7.102 The model results for the 2033 and 2041 Baseline and Development scenarios in the morning peak period show a negligible change in the junctions' capacity, when compared to the without Development scenario.

Table 7.24: Northfield Roundabout PM Peak Hour (17:00-18:00) – Dos (%) and MMQ (PCUs)

Link Name	Link No.	2021 Baseline		2033 Baseline + Com		2033 Baseline + Com + Dev		2041 Baseline + Com		2041 Baseline + Com + Dev	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
A4145	1/1	110%	38	115%	55	115%	55	124%	79	124%	78
	1/2+ 1/3	110%	45	117%	69	117%	69	126%	98	126%	98
A509 (W)	3/1	110%	47	122%	86	122%	89	128%	110	129%	112
	3/2	110%	49	122%	93	122%	94	128%	117	129%	119
	3/3	42%	4	46%	4	46%	4	48%	5	48%	5
A509 (N)	4/1	45%	8	87%	13	87%	13	92%	15	91%	15
	4/2	46%	8	87%	14	87%	14	91%	16	91%	16
	4/3+ 3/4	38%	4	67%	6	68%	6	71%	6	72%	6
A5130 (E)	7/1	44%	4	70%	6	70%	6	77%	7	75%	7
	7/2+ 7/3	58%	5	79%	7	79%	7	82%	8	82%	8

7.103 The 2021 Baseline model results in **Table 7.24** show that the junction currently operates over capacity (A4145 and A509 (W)) at 110% in the evening peak hour and would continue to operate over capacity in the future years.

7.104 In the 2033 Baseline evening peak hour, the A509 (W) and A4145 are forecast to operate 22% and 17% over capacity, respectively. The DoS and queue lengths remain broadly the same in the with Development scenario, with a very slight increase in DoS on the A509 (N) from 67% (without development) to 68% (with Development).

7.105 For the 2041 Baseline scenario the A509 (W) and A4145 are forecast to operate 28% and 26% over capacity, respectively. There are a few negligible changes in the DoS and queue lengths in the 2041 development scenario, but the operation broadly remains the same.

7.106 Overall, the model results for the 2033 and 2041 scenarios show a negligible change in the junctions' capacity as a result of the proposed development.

7.107 Northfield Roundabout was assessed within the Caldecote Farm employment site TA report using LinSig software (within the same model as M1 J14). The model results show the junction would operate over capacity in all modelled scenarios, however the development would not have a significant impact on the junctions' operation.

7.108 In detail, the Caldecote Farm employment site model results for the 2031 background morning peak hour scenario show the junction is operating at 158% (A4145 Childs Way) with a MMQ of 115 vehicles. This increases to 159% and 117 vehicles, respectively in the 2031 with Development scenario. In the evening peak hour, the junction is operating at 132% (A4145 Childs Way), with a queue of 123 vehicles. This increases to 133% and 126 vehicles, respectively in the 2031 with Development scenario.

Broughton Roundabout Interchange (M1 J14)

7.109 The LinSig morning and evening peak hour DoS and MMQ (PCUs) for the Broughton Roundabout Interchange are summarised in **Table 7.25**. The full model output reports are provided in **Appendix 19**.

Table 7.25: Broughton Roundabout Interchange (M1 J14) Peak Hours

Link Name	Link No.	2021 Baseline		2033 Baseline + Com		2033 Baseline + Com + Dev		2041 Baseline + Com		2041 Baseline + Com + Dev	
		DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)	DoS (%)	MMQ (PCUs)
AM Peak Hour (08:00-09:00)											
A509 (S)	1/1+ 1/2	60%	25	67%	28	69%	28	71%	27	72%	28
	1/3	36%	4	44%	6	42%	5	44%	6	44%	6
M1 SB Off Slip	3/1 +3/2	76%	12	93%	19	93%	19	97%	24	97%	24
	3/3	72%	10	90%	16	90%	17	97%	23	97%	23
A509 (N)	5/1	65%	4	83%	6	91%	10	93%	11	102%	26
	5/2+ 5/3	84%	8	108%	45	109%	46	121%	79	120%	78
M1 NB Off Slip	6/2	89%	8	111%	27	115%	32	118%	37	121%	42
PM Peak Hour (17:00-18:00)											
A509 (S)	1/1+ 1/2	102%	60	100%	51	100%	51	102%	69	100%	52
	1/3	77%	11	80%	12	80%	12	84%	13	84%	13
M1 SB Off Slip	3/1 +3/2	79%	7	97%	10	98%	10	102%	17	104%	22
	3/3	66%	6	81%	8	83%	9	87%	10	87%	10
A509 (N)	5/1	69%	3	89%	10	94%	12	97%	15	101%	30
	5/2+ 5/3	76%	4	104%	40	105%	44	113%	55	113%	55
M1 NB Off Slip	6/2	77%	7	109%	30	117%	44	115%	42	123%	57

7.110 The 2021 Baseline model results in **Table 7.25** show that the junction currently operates with 11% spare capacity in the morning peak hour and is operating slightly over capacity in the evening peak hour.

7.111 In the morning peak hour of the 2033 Baseline scenario, the M1 NB Off Slip and A509 (N) are forecast to operate 11% and 8% over capacity, respectively. In the evening peak hour, the M1 NB Off Slip, A509 (N) and A509 (S) are all forecast to operate over capacity at 109%, 104% and 100%, respectively. The DoS and queue lengths remain broadly the same in the morning and evening peak hours of the 2033 with Development scenarios, with very slight increases in DoS demonstrating that the proposed development would have a negligible impact on the operation of the M1 J14.

7.112 For the morning peak hour of the 2041 Baseline scenario, the A509 (N), M1 NB Off Slip and M1 SB Off Slip are forecast to operate at 121%, 118% and 97% capacity, respectively. In the evening peak

hour, the M1 NB Off Slip, A509 (N), M1 SB Off Slip and A509 (S) are all forecast to operate over capacity. The DoS and queue lengths remain broadly the same in the 2041 with Development scenario, with very minor changes in the DoS.

7.113 Overall, the model results for the 2033 and 2041 without and with Development scenarios show a negligible change in the junctions' capacity. There is a small increase in the DoS (4% and 3%, respectively) for the M1 NB Off Slip in the morning peak hour.

7.114 M1 J14 (Broughton Roundabout Interchange) was assessed within the Caldecote Farm employment site TA report using LinSig software (within the same model as Northfield Roundabout). The model results show the junction would operate over capacity in all modelled scenarios; however, the development would not have a significant impact on the junctions' operation.

7.115 In detail, the Caldecote Farm employment site model results for the 2031 background morning peak hour scenario show the junction is operating at 132% (M1 NB Off Slip Ahead) with a MMQ of 53 vehicles. The arm is operating at 132% and 53 vehicles, respectively in the 2031 with Development scenario. The A509 (N) is operating at 112% and MMQ of 56 vehicles, with the DoS remaining the same and the queue slightly increasing to 57 vehicles, in the with Development scenario. In the evening peak hour, the junction is operating at 103% (M1 SB Off Slip Ahead), with a queue of 19 vehicles, increasing to 104% and 22 vehicles respectively in the 2031 with Development scenario.

Summary

7.116 This section of the report assesses the potential traffic and highway impacts of the Bloor Homes development proposals on the local highway network in the vicinity of the site, including the traffic flow changes and junction analysis, for the existing and future scenarios as agreed with MKC.

7.117 **Table 7.2** illustrates that even though some junction arms have an increase of more than 5% in traffic resulting from the development proposals; overall, the total changes in overall junction flows are all less than a 5% increase between the 2033 without and 2033 with Development scenarios, with the exception for Tongwell Roundabout where there is an increase in 5.6% in the morning peak hour and an increase of 7.6% in the evening peak hour.

7.118 The transport modelling shows that are already existing capacity issues at a number of junctions across the local highway network particularly at Marsh End Roundabout, Tickford Roundabout, Northfield Roundabout, and M1 J14.

7.119 The greatest impact on the immediate local highway network because of the Bloor Homes development proposals will be at the Marsh End and Tongwell Roundabouts, with all of the development trips passing through one of these junctions. The development impacts at the other junctions assessed across the wider highway network are negligible and this is reflected in the results of the detailed junction assessments.

7.120 In terms of the impact of the Bloor Homes development on the operation of Marsh End Roundabout, the junction is already operating over capacity in the 2021 Baseline scenario. The proposed signalisation of the roundabout will provide the improvements required to increase the junctions' capacity. The model results between the 2033 without and with the Bloor Homes development illustrate minor changes in the DoS and queues. It is therefore considered that the traffic impacts of the Bloor Homes development on the operation of Marsh End Roundabout are not severe in NPPF terms.

7.121 At the Tongwell Roundabout, minor mitigation could satisfactorily address the impacts of the Bloor Homes development, prior to the delivery of the strategic HIF infrastructure improvements, if deemed necessary.

7.122 In summary, it is concluded that the development impacts arising from the assessment scenarios will not have a severe impact on the operation of the local highway network in NPPF terms.

7.123 Furthermore, it can be concluded that the Bloor Homes development proposals accord with policy CT2 of the MK:Plan, in that the impacts of the development can be accommodated or mitigated.

8 SENSITIVITY ASSESSMENT

Introduction

8.1 This section of the report summarises the results of two sensitivity assessments of the potential traffic and highway impacts of the development proposals on the local highway network in the vicinity of the Site, including the traffic flow changes and junction analysis, as agreed with MKC. The detailed assessment is included separately at **Appendix 20**.

8.2 The two sensitivity tests are:

i. 10% Modal Shift – a reduction in car driver vehicle trips of 7.28% (10% of car driver mode share), which has been transferred proportionately to sustainable modes to represent the implementation of a Travel Plan.

ii. MKE 2031 Vehicle Trip Rates – the application of the agreed MKE 2031 vehicle trips to the proposed 800 residential dwellings, reflecting the wider strategic significant HIF transport and highway infrastructure improvements.

8.3 The sensitivity tests have been assessed for the 2033 / 2041 forecast years without and with Development.

8.4 Overall, the traffic flows across the network for the 10% MS and MKE 2031 Vehicle Trip Rates development scenarios are lower, when compared to the main development impact assessment in **Section 7** (see **Tables 7.2** in **Section 7** and **Table 2** and **7** in **Appendix 20**), this reflects the modal shift and transfer of vehicle trips to sustainable modes and the lower vehicle trips rates applied to the proposed 800 units. Consequently, the impacts of these two scenarios are lower. This is also reflected in the overall traffic impact across the network with lower DoS and shorter queue lengths, than the main assessment in **Section 7**.

8.5 The transport modelling shows that there are existing capacity issues at a few junctions across the local highway network particularly at Marsh End Roundabout, Tickford Roundabout, Northfield Roundabout and M1 J14.

8.6 Similar to **Section 7**, the greatest impact on the immediate local highway network because of the Bloor Homes development proposals will be at Marsh End Roundabout and Tongwell Roundabout. Notwithstanding, as the flows assessed in this section are lower than the 'worst-case' assessment in **Section 7**, it is considered that the impacts arising from the 10% MS and MKE development scenarios can be mitigated at the Marsh End Roundabout. At the Tongwell Roundabout an improvement at the Willen Road (N) arm would satisfactorily address the impact of the Bloor Homes development.

8.7 The development impacts at the other junctions assessed across the wider highway network are negligible and this is reflected in the results of the detailed junction assessments.

8.8 In summary, it is concluded that the development impacts arising from the 10% MS and MKE scenarios will not have a severe impact on the operation of the local highway network in NPPF terms.

8.9 Furthermore, it can be concluded that the development proposals accord with policy CT2 of the MK:Plan in that the impacts of the development can be accommodated or mitigated.

9 SUSTAINABLE MODES ASSESSMENT

Introduction

9.1 This section considers the likely impact of the proposed development on the sustainable modes of travel, walking, cycling, rail and bus.

Walking and Cycling

9.2 Based on the trip generation analysis in **Section 6**, the forecast peak hour walking and cycling trips (as the main mode of a journey) associated with the proposed development are summarised in **Table 9.1**. It is noted that these trips are expected to increase because of the Travel Plan and as a result of the wider MKE SUE and the associated sustainable infrastructure coming forward.

Table 9.1: Forecast Peak Hour Walk and Cycle Trips

Mode	Person Trips			
	AM Peak Hour		PM Peak Hour	
	Arr.	Dep.	Arr.	Dep.
Walk	9	28	24	14
Cycle	5	14	12	7
Total	**14**	**42**	**36**	**21**

9.3 **Table 9.1** shows that the proposed development is expected to generate an additional 56 walking and cycling trips in the morning peak hour and 57 walking and cycling trips in the evening peak hour.

9.4 There will also be a number of walking trips to bus stops and cycle trips to the railway station. It is likely that most of the walking trips will be internalised to the local centre, primary school and recreational areas.

9.5 The proposed pedestrian and cycle infrastructure that will form part of the development, are considered appropriate to accommodate the forecast number of movements by walking and cycling modes. The proposed pedestrian and cycle infrastructure improvements are as follows:

- Pedestrian and cyclist crossing facilities on all arms at both Site accesses.
- A new pedestrian overbridge with ramps and steps to accommodate pedestrian and cycle movements over the A422, broadly along the route of Footpaths 007 and 014.
- Pedestrian access to be provided in the north-western corner of the Site to connect to the Marsh End Roundabout and the redway and pedestrian / cycle crossing common works with the Caldecote Farm employment site.
- A new redway route along the eastern side of Willen Road between the Tongwell Roundabout and the northern Site access, connecting to the redway being provided to Marsh End Roundabout, common works with the Caldecote Farm employment site.
- New footway / cycleway connection along the A422 between the pedestrian overbridge and Willen Road (N), to connect with the redway proposed along the western side of Willen Road (N), common works with the Caldecote Farm employment site.

- Potential new staggered pedestrian crossing provision across Willen Road (N) to be delivered in conjunction with the Marsh End Roundabout signal controls proposed common works with the Caldecote Farm employment site.
- Grid road connection to the south of the Site, providing a connection to the wider MKE-SUE, in accordance with the aspirations of the MKE SUE SPD.

9.6 The Site has been designed to be permeable, with pedestrians and cyclists at the heart of the design to ensure ease of access movement, and to also ensure integration with the wider MKE SUE. This accords with policies:

1. Policy CT1 (Sustainable Transport Network) to promote transport choice.
2. Policy CT2 (Movement and Access) to integrate the development with existing sustainable transport network, provide safe, suitable and convenient access for all potential users and to offer maximum flexibility in the choice of travel modes.
3. Policy CT3 (Walking and Cycling) of Plan: MK by extending the existing redway provision.
4. Policy INF1 (Delivering Infrastructure), to deliver the necessary on and off-site infrastructure required to support the development.
5. Policy SD9 (General Principles for Strategic Urban Extensions) to integrate the Strategic Urban Extension with the existing built-up area.
6. Policy SD12 (MKE SUE) to deliver a network of segregated, and where appropriate grade separated, new and enhanced footpaths and cycleways to connect to existing routes beyond the site, to include provision of appropriate pedestrian and cycle crossings of the A422.

9.7 Further details on the development proposals are included within **Section 5**.

Public Transport Impacts

9.8 **Table 9.2** presents the forecast increase in public transport trips associated with the proposed development for the morning and evening peak hours.

Table 9.2: Forecast Peak Hour Public Transport Trips

Mode	Person Trips			
	AM Peak Hour		PM Peak Hour	
	Arr.	Dep.	Arr.	Dep.
Rail	5	14	12	7
Bus	5	16	14	8
Total	**10**	**30**	**26**	**15**

9.9 **Table 9.2** shows that the development would be expected to generate a total of 40 additional trips by public transport during the morning peak hour and 41 passenger trips during the evening peak hour.

9.10 As described in **Section 2**, the Site is accessible by bus with regular bus services (1 and C10 Cranfield Connect) stopping at two nearby bus stops, which will be slightly relocated between the proposed northern and southern Site accesses, common works with the Caldecote Farm employment site proposals.

9.11 The northbound bus stop will be located circa 60 metres south of the proposed northern Site access and the southbound bus stop is located circa 75 metres south of the proposed northern Site access. There is an existing combined frequency of three buses per hour at the nearby bus stops in both the morning and evening peak hours.

9.12 As part of the development proposals, three additional bus stops will be introduced within the Site, as illustrated on the indicative masterplan layout (see **Appendix 2**). This will allow for all residents to be within 400 metres of a bus stop which will encourage travel by this sustainable mode. Further details on the development proposals are included within **Section 5** and details of the proposed Public Transport Strategy are provided in the next Section (**Section 10**).

9.13 It is considered that the existing bus services and improvements to bus infrastructure within the Site, will be able to accommodate the additional 19 bus passengers in both the morning and evening peak hour and will encourage further people to travel by bus, thereby minimising vehicular trips associated with the development.

9.14 Milton Keynes Central National Rail Station is located approximately 6.6 kilometres to the southwest of the Site. The station provides access to West Midlands Trains, Avanti West Coast and Southern which route to a range of key destinations including London Euston, Manchester Piccadilly, Birmingham New Street, Selhurst, Blackpool North, Crewe, Northampton, Liverpool Lime Street, Clapham Junction and Edinburgh.

9.15 It is considered that the existing number and frequency of rail services would readily be able to accommodate the additional 21 and 22 rail passengers in the morning and evening peak hours respectively and that these additional passengers would not have any impact on the operation of these services.

Summary

9.16 Overall, the proposals through the provision of new land uses, infrastructure and facilities, and management (Travel Plan), will encourage sustainable travel to the benefit of existing and future residents, visitors, pupils, and employees.

9.17 This section has demonstrated that the existing infrastructure, along with the proposed improvements, will not only be able to accommodate the additional walk, cycle and public transport trips generated by the proposed development in the morning and evening peak hours, but will encourage sustainable travel and also minimise the impacts of the development on the local highway network.

9.18 It should also be noted that the highways improvements proposed as common works with the Caldecote Farm employment site, and in the longer term by the wider MKE SUE, will also help facilitate travel by these modes, thereby maximising travel by sustainable modes and travel by private car, in accordance with the requirements of Plan:MK Policy SD1 (Place-Making General Principles for Development), Plan:MK Policy CT1 (Sustainable Transport Network), Plan:MK Policy CT2 (Movement and Access), Policy CT3 (Walking and Cycling), Plan:MK Policy CT5 (Public Transport), Policy INF1 (Delivering Infrastructure), Policy SD9 (General Principles for Strategic Urban Extensions) and Policy SD12 (MKE SUE).

10 SUMMARY AND CONCLUSIONS

Summary

Introduction

10.1 This TA report has been prepared by RPS on behalf of Bloor Homes Limited to support the Outline planning application for the proposed development at Willen Road, Newport Pagnell. The development site, forms part of the wider MKE SUE. The local planning authority and highway authority is MKC. The highway authority for the M1 motorway is National Highways (formerly Highways England).

10.2 A separate Framework Travel Plan has been prepared to support the planning application focused at encouraging sustainable modes of travel to and from the Site.

Proposed Development

10.3 The Bloor Homes Site is located at Willen Road, at the north-western corner of the wider SD12 allocation to the east of the M1 motorway, south of Newport Pagnell.

10.4 The Outline planning application development proposals for the Bloor Homes Site comprise the provision of:

1. Up to 800 residential dwellings.
    a. Primary school.
    b. Local centre.
    c. Sports pitches on land to the north of the A422.
    d. Car and cycle parking provision.
    e. Disabled and powered two-wheeler parking provision.
    f. Two new access junctions from Willen Road.
    g. Local Distributor Road connecting Willen Road to the west to the wider MKE SUE and new grid road to the east (Southern Access Road).
    h. Pedestrian / cycle bridge over the A422.
    i. Potential pedestrian crossing on the northern arm of the Marsh End Roundabout.
    j. New redway on the eastern side of Willen Road.
    k. On site delivery and servicing.

10.5 The development proposals have been designed to fully integrate and connect well within the surrounding area including the wider MKE SUE, to safely maximise accessibility and sustainable travel.

10.6 The exact local centre uses are not known at this Outline application stage; however, it is the intention that the local centre will serve the new local community with good walking and cycling connections, thereby reducing the need to travel distances and in particular trips by private car.

10.7 The internal road layout will be designed in accordance with MK Design Guidance and the MKE SUE SPD. The internal roads will be permeable to allow easy and safe access for pedestrians and cyclists, and for motorised vehicles. The Site will be linked to the wider MKE SUE allocation providing access for all modes. This accords with the requirements of the NPPF paragraph 112(a) and Plan:MK Policies SD1, Sd10, SD 12, CT3 and CT5.

10.8 It is clear the Bloor Homes development will deliver significant levels of infrastructure, in accordance with the aspirations of the MKE SUE SPD, over and above the level of infrastructure required to make the development itself acceptable (e.g., Southern Primary Distributor Road).

Policy

10.9 This TA has been prepared in accordance with national and local policy and best practice guidance and following pre-application discussions with MKC. The proposals seek to provide a sustainable development in form and location, seeking to reduce reliance on the private car, thereby minimising the potential impact on the local highway network.

10.10 Detailed consideration has been given to the MKE SUE SPD in developing the transport and highway strategy for the Site and ensuring it encapsulates the SPD aspirations and integrates well with its surroundings and the wider MKE SUE.

10.11 It is considered that the development proposals are in accordance with the relevant Transport policies at both a national and local level, as summarised herein.

MKE TA Review

10.12 A review of the MKE TA (dated March 2021), is included. The MKE TA assesses the transport impacts of the MKE development on the highway and public transport networks.

10.13 Overall, the MKE TA concludes that the MKE SUE Site will be highly accessible for journeys on foot, by cycle or public transport. In addition, the transport impacts associated with the development can largely be mitigated accordingly with new infrastructure, improvements to the existing infrastructure (via financial contributions and the MK Tariff) and appropriate management plans.

10.14 Furthermore, it identifies that the proposed Bloor Homes northern and southern access junctions will operate within capacity in both the morning and evening peak hours in the 2031 and 2048 with Development scenarios.

10.15 For the Marsh End Roundabout, the MKE TA concludes that the mitigation measure of full signalisation, proposed as part of the Newlands planning application is largely sufficient, with an improvement in the overall operation of the junction.

10.16 For the Tongwell Roundabout, the MKE TA forecasts that this junction would operate within capacity in both the 2031 and 2048 Do Minimum and Do Something Scenarios with the future highway network improvements.

Existing Highway Network

10.17 The Site is well connected to the highway network (via Willen Road) with easy access by road to Milton Keynes and Newport Pagnell, and to the strategic road network via the M1 junction 14.

10.18 It has been demonstrated that there is an existing good level of safety associated with the highway network in the local area.

Sustainable Travel

10.19 The Site is well located in respect to bus services with bus stops located within approximately 350 metres walking distance of the proposed northern access junction, providing easy access to areas such as Newport Pagnell, Tickford, Central Milton Keynes, Cranfield University and Bedford.

10.20 Milton Keynes Central National Rail Station is accessible via bus route 1 / C10 Cranfield Connect from Willen Road Bus Stop, (southbound) with an approximate 25-minute journey time, providing access to a range of key destinations including London Euston, Manchester Piccadilly, Birmingham New Street, Selhurst, Blackpool North, Crewe, Northampton, Liverpool Lime Street, Clapham Junction and Edinburgh.

10.21 It has been demonstrated there are a range of existing key facilities located within the surrounding area and the existing cycleways and footpaths provide some opportunities to access these facilities.

10.22 The Milton Keynes Redway Super Route H4 connects from the Tongwell Roundabout, to the south of the Site, along Dansteed Way. This main route provides links to other redway and traffic-free/quiet routes across Milton Keynes. There are also redway and traffic-free/quiet routes to the north of the Site, which provide connections to Newport Pagnell.

Access Arrangements

10.23 The proposed Site accesses have been designed to fully integrate with the proposed Caldecote Farm employment site access / highway improvements, which have been agreed in principle by MKC Highways; however, are not yet permitted. The designs though can be adapted to exclude the Caldecote Farm employment site access, should the need arise.

10.24 The vehicular access strategy has been agreed in principle with MKC Transportation.

10.25 The proposals incorporate significant pedestrian / cycle improvements in the locality of the Site. Several pedestrian and cycle improvement works are also proposed to be provided within the Site and at the main access points to the Site. This demonstrates that pedestrians and cyclists are at the heart of the design to ensure permeability through the Site and connectivity with the surrounding areas, in accordance with the requirements of the NPPF, Plan:MK and the MKE SUE SPD.

10.26 The integration within the masterplan to allow for a connection from the proposed Southern Access Road to the MKE grid road will also provide future benefits for pedestrians and cyclists, with links to the wider MKE (see BPI 9 on **Figure 5.1**, attached to this report).

Parking

Car / EVCP / Disabled / Powered Two-Wheeler Parking

10.27 Parking provision will be in accordance with MKC's standards, with the details to be addressed through reserved matters applications. Provision will be made for EVCPs, blue badge holders and powered two-wheelers.

Cycle Parking

10.28 The proposed uses will be provided with cycle parking in accordance with the prevailing local standards. This will encourage cycle ownership and promote cycling as a viable option for travelling locally to work, to shop, to school and to visit family and friends. Specific details will be provided within the reserved matters applications.

Public Transport Strategy

10.29 The public transport strategy for the Site has been designed in accordance with MKC's requirements / aspirations, to integrate with proposals / developments coming forward including the MKE development and other proposed developments (i.e., the wider MKE SUE and Caldecote Farm). This ensures the Site is fully integrated with its surroundings.

10.30 A number of public transport improvements are proposed for the Bloor Homes Site and identified in this section, in order to support the public transport strategy. The proposals cater for the future needs of the Site users and will encourage sustainable travel by this mode.

10.31 The public transport strategy for the Site has been discussed and agreed in principle with MKC.

10.32 It is considered that the proposals accord with the aspirations of the MKE SUE SPD and Plan:MK Policies SD1 (Place-Making Principles for Development), SD12 (MKE SUE), CT2 (Movement and Access), CT5 (Public Transport) and INF1 (Delivering Infrastructure).

Car Parking Management

10.33 The design and management of parking spaces for the development will be provided in future reserved matters planning applications, with Car Parking Management Plans (CPMP) being Conditioned if necessary.

Deliveries & Servicing

10.34 proposed site accesses have been designed to accommodate large refuse vehicles, delivery vehicles and fire tenders. The internal roads of the proposed development will be designed to accommodate similar vehicles at the reserved matters stages.

10.35 Sufficient servicing and delivery facilities will be provided for the development in accordance with MKC's guidance. If required, a Servicing Management Plan (SMP) can be prepared for the reserved matters applications.

10.36 The scheme has been designed to allow full access for emergency vehicles.

Framework Travel Plan

10.37 A separate Framework Travel Plan (FTP) report is submitted as part of this planning application. The FTP provides an overarching site-wide framework for the promotion of travel by sustainable modes for the site and would seek to raise awareness amongst residents/users of the accessibility of the Site via sustainable travel modes, as well as the proximity of local services and amenities, which could be conveniently accessed on foot / cycle.

Trip Generation

10.38 The TA forecasts the multi-modal trip generation for the proposed development for 650 units (anticipated partial build-out to coincide with the HIF bid in 2031) and 800 units (full build-out in 2033). The residential trip generation has been based on the TA for the Tickford Fields Committed Development as a comparable development.

10.39 The primary purpose of the primary school and local centre will be to serve the needs of the new local community. With the excellent active travel and bus connectivity, it is highly likely that most school / local centre trips will be by these sustainable modes with very few home-school / local centre-home (primary), trips by private car will be minimal.

10.40 The additional traffic on the local network associated with the Tickford Fields committed development and proposed Caldecote Farm employment development are included within the assessment.

10.41 Service vehicle trip generation has been estimated for the development proposals and is included for information purposes. The forecast servicing and delivery trips will mostly consist of small to medium sized vans relating to deliveries; with a small number of larger vehicles collecting the general and recycling waste.

10.42 The trip generation forecasts that once fully built out, the proposed development would be expected to generate 376 and 394 two-way vehicle trips in the morning and evening peak hours respectively, without any transport mitigation.

Impact Assessment

10.43 The potential traffic and highway impacts of the development proposals on the local highway network in the vicinity of the Site are assessed in terms of traffic flow changes and junction analysis.

10.44 The greatest increase in traffic flows is for Willen Road (S) at the Marsh End Roundabout, in the morning peak hour, where there is an increase in 134 vehicles (21%), resulting from the proposed development. Overall, the total changes in *total* junction flows are all less than a 5% increase between the 2033 without and 2033 with scenarios, with the exception of Tongwell Roundabout where there is an increase of 5.6% in the morning peak hour and an increase of 7.6% in the evening peak hour.

10.45 Full junction assessments have been carried out for the specified junctions. The roundabout junctions have been modelled using industry standard Junctions 9 ARCADY software and the signal-controlled junctions using LINSIG.

10.46 In summary, the model results show that there are existing capacity issues at a few junctions across the local highway network, particularly at Marsh End Roundabout, Tickford Roundabout, Northfield Roundabout and M1 J14.

10.47 There are a number of highway improvements planned for the future as part of the MKE development, proposed Caldecote Farm employment site and Tickford Fields committed developments and as part the Bloor Homes development and these are well documented earlier in this TA report.

10.48 The greatest impact on the immediate local highway network because of the Bloor Homes development proposals will be at the Marsh End Roundabout; however, the various highway improvements due to come forward will help mitigate against the impacts not only at this junction, but also across the wider road network. These include upgrades to Marsh End Roundabout (including widening, pedestrian crossing facilities and amendments to the signal timings), improvements to Willen Road (S), partial signalisation of Tickford Roundabout and the new Southern Link Road (which will result in re-routing of traffic), as well as many others.

10.49 Notwithstanding, the assessments demonstrate that with the Newlands proposed improvements to the Marsh End Roundabout, which are expected to come forward in advance of the Bloor Homes development, the proposed Bloor Homes development traffic would not have a severe impact on the operation of this roundabout in NPPF terms.

10.50 This assessment also demonstrates that at the Tongwell Roundabout, minor mitigation could satisfactorily address the impacts of the Bloor Homes development, prior to the delivery of the strategic HIF infrastructure improvements, if deemed necessary.

10.51 The Bloor Homes development impacts at the other junctions assessed across the wider highway network are considered to be negligible and this is reflected in the results of the detailed junction assessments.

10.52 It is therefore considered that the Bloor Homes proposals can be delivered in advance of the wider strategic HIF infrastructure improvements, as the network would be able to accommodate the development traffic without the strategic improvements in-situ. The only necessary improvements would be those common works to be delivered at Marsh End Roundabout.

10.53 In summary, it is concluded that the development impacts arising from the assessment scenarios will not have a severe impact on the operation of the local highway network in NPPF terms and that the Bloor Homes development proposals accord with policy CT2 of the MK:Plan, in that the impacts of the development can be accommodated or mitigated.

10.54 It should be noted that the MKE TA report states that all highway impacts of the wider MKE allocation, associated with the new development, can be mitigated. Furthermore, the MKE assessment includes a quantum uplift in the allocation, which has been applied within the modelling. This provides flexibility in the allocation in the event of any changes to the parcel sizes (in terms of the number of housing units etc). This means that the transport impacts are likely to be over-estimated, thereby representing a robust, worst-case scenario.

Sensitivity Assessment

10.55 Two sensitivity assessments have been carried out to assess the potential traffic and highway impacts of the development proposals on the local highway network in the vicinity of the Site including the traffic flow changes and junction analysis.

10.56 The two sensitivity tests are:

i. **10% Modal Shift** – a reduction in car driver vehicle trips of 7.28% (10% of car driver mode share), which has been transferred proportionately to sustainable modes.

ii. **MKE 2031 Vehicle Trip Rates** – the application of the agreed MKE 2031 vehicle trips to the proposed 800 residential dwellings.

10.57 It is considered that the 10% Modal Shift scenario will be more representative of the proposed development before the introduction of the wider MKE infrastructure improvements, due to the sustainable infrastructure, local facilities and amenities and the Framework Travel Plan being delivered in conjunction with the proposed Bloor Homes development.

10.58 The sensitivity tests were undertaken for the 2033 / 2041 (where relevant) without and with Development.

10.59 The assessment included within **Section 7** is considered to be the worst-case, as the traffic flows across the network for the 10% MS and MKE 2031 Vehicle Trip Rates development scenarios are higher. Consequently, the impacts of the assessment in **Section 7** are higher and this is also reflected in the overall traffic impact across the network with higher DoS and longer queue lengths.

10.60 In summary, the sensitivity assessment concluded that the development impacts arising from the 10% MS and MKE scenarios will not have a severe impact on the operation of the local highway network in NPPF terms and would have less of an impact than the no MS scenario.

10.61 The TA concluded that the development proposals accord with policy CT2 of the MK:Plan in that the impacts of the development can be accommodated or mitigated.

10.62 The impacts of the proposals in terms of existing and proposed servicing and refuse collection arrangements have been considered. Sufficient servicing and delivery facilities will be provided for the development in accordance with MKC's guidance.

Sustainable Modes Assessment

10.63 Overall, the proposals through the provision of new land uses, infrastructure and facilities, and management (Framework Travel Plan), will provide and encourage sustainable travel to the benefit of future residents, visitors, pupils, and employees.

10.64 **Section 9** demonstrates that the existing infrastructure, along with the proposed improvements, will not only be able to accommodate the additional walk, cycle and public transport trips generated by the proposed development in the morning and evening peak hours, but will also minimise the impacts of the development on the local highway network.

10.65 It should also be noted that the common Bloor Homes / Caldecote Farm employment site highway improvement works, and in the longer term by the wider MKE SUE, will also help facilitate travel by these modes, thereby maximising travel by sustainable modes and minimising travel by private car.

10.66 It is considered that the proposals accord with the aspirations of the MKE SUE SPD and Plan:MK Policies SD1 (Place-Making Principles for Development), SD9 (General Principles for SUEs), SD12 (MKE SUE), CT2 (Movement and Access), CT3 (Walking and Cycling), CT5 (Public Transport) and INF1 (Delivering Infrastructure).

Conclusion

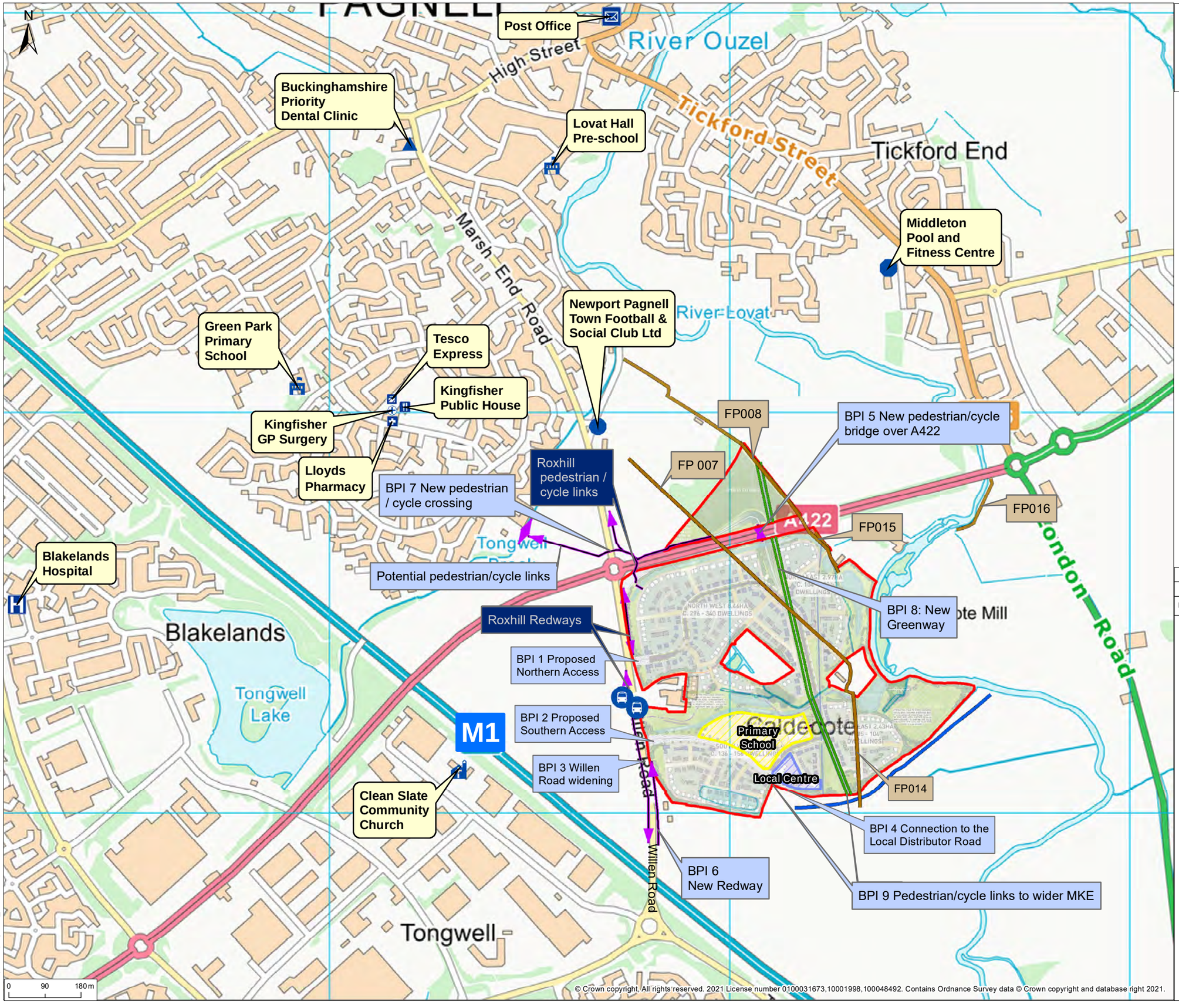
10.67 In conclusion, the TA establishes that the land to the east of Willen Road, Newport Pagnell, in its current form, is acceptable to serve the proposed development of up to 800 residential dwellings, a primary school, local centre and sports pitches.

10.68 It has also been concluded that the impact of the proposed development of would not have a severe residual impact on the local highway network in accordance with the requirements of the NPPF. Furthermore, the development will provide a safe means of access to the Site.

10.69 As such, there is no transport reason why the development should not be permitted.

Figures

Figure 1 – Future Context Plan



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Legend

- Site boundary

Local Facilities

- Church
- Dentist
- Football Club
- GP
- Hospital
- Pharmacy
- Pool and Fitness Centre
- Post Office
- Pub
- School
- Shop
- Bus stop
- Pedestrian / Cycle Links
- Existing Public Footpaths
- Milton Keynes Proposed Grid Road
- North / South Greenway Link
- Local Centre
- Primary School

Rev	Description	By	CB	Date

MAKING COMPLEX EASY

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Client: Bloor Homes Ltd

Project: Newport Pagnell

Title: Future Context Plan

Status	Drawn By	PM/Checked By
ISSUE	RD	KD
Project Number	**Scale @ A3**	**Date Created**
JNY10094	1:9,000	OCT 2021
Figure Number		**Rev**
5.1		-

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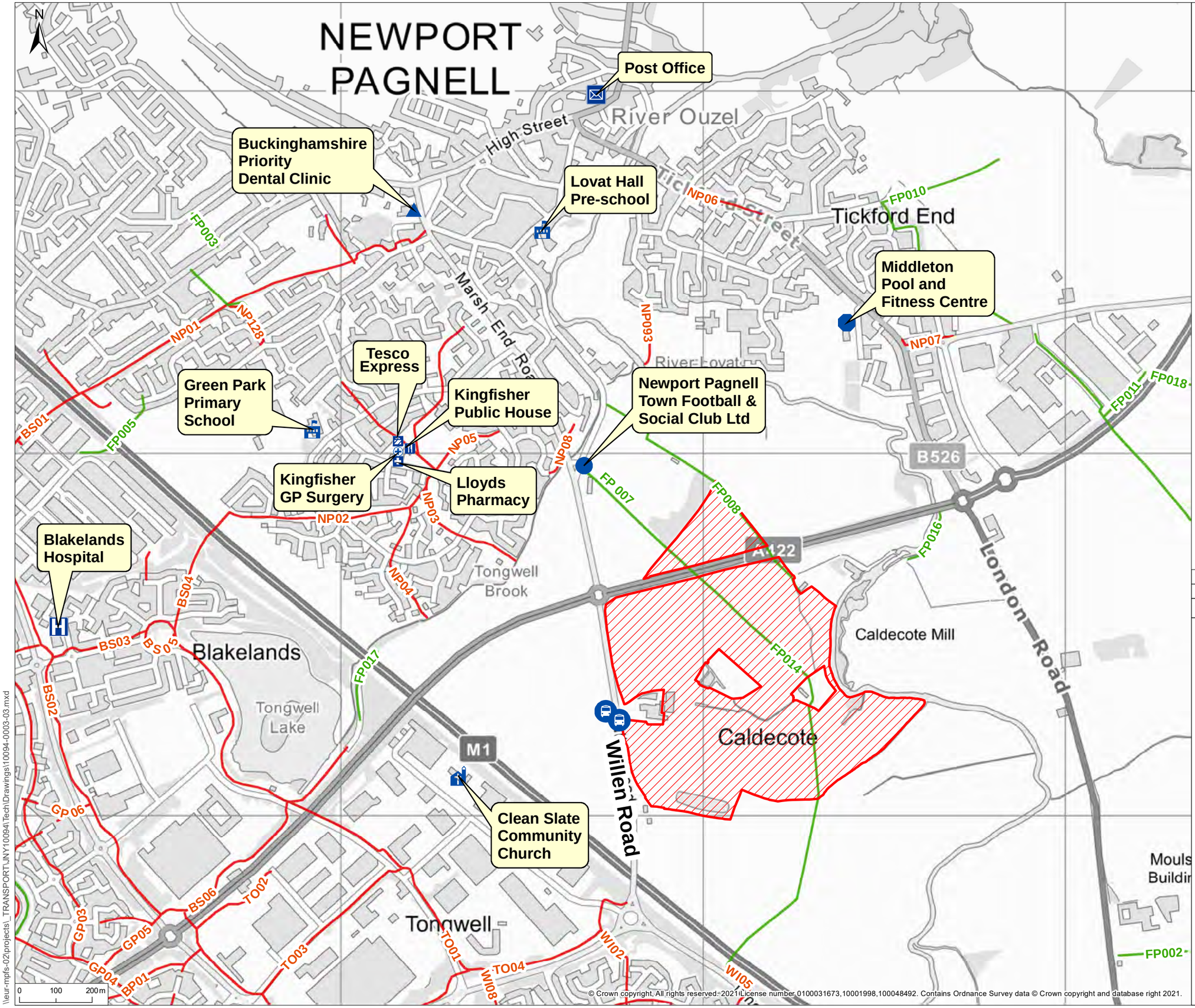
Appendices

Appendix 1 – Existing Context Plan



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- GP
- Hospital
- Pharmacy
- Pool and Fitness Centre
- Post Office
- Pub
- School
- Shop
- Bus stop
- Public Footpath
- Redways

Rev	Description	By	CB	Date

MAKING COMPLEX EASY

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Status	Drawn By	PM/Checked By
ISSUE	RD	KD
Project Number	**Scale @ A3**	**Date Created**
JNY10094	1:10,000	OCT 2021

Figure Number: Rev -

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Appendix 2 – Illustrative Masterplan

KEY

- Built form - Main Street
- Built form - Neighbourhood Core
- Built form - Green Edge
- Local Centre
- Primary School
- Green infrastructure
- Adjacent employment development
- Proposed vehicular, cycle and pedestrian access point
- Existing rights of access to be retained
- Proposed MK grid road (Fig 4.2 MK East SUE Development Framework SPD)
- Proposed MK local distributor road (Fig 4.2 MK East SUE Development Framework SPD)
- Primary access/link road
- Existing PRoW
- Potential PRoW diversion
- Proposed pedestrian/cycle access points
- Existing MK redway
- Existing pedestrian/cycle route (leisure/traffic free/quiet route)
- Proposed MK redway
- Proposed pedestrian/cycle links
- Proposed bus stop (indicative location shown)
- Flood Zone 3
- Existing vegetation with associated RPZ
- Existing vegetation to be removed
- Proposed vegetation
- Proposed local play area
- Proposed neighbourhood play area

WILLEN ROAD, NEWPORT PAGNELL - **ILLUSTRATIVE MASTERPLAN**

Pegasus Design

PLANNING | DESIGN | ENVIRONMENT | ECONOMICS | WWW.PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: AMW/EMH | APPROVED BY P.M: MCC | DATE: 16.09.2021 | SCALE: 1:2,500 @ A1/1:5,000 @ A3 | DRWG: **P19-2609_07** REV: N | CLIENT: **BLOOR HOMES** |

Appendix 3 – Pre-Application Consultation Correspondence

TECHNICAL NOTE

Project Title: Newport Pagnell

Report Reference: JNY10094-06a

Date: 12 May 2021

Proposed Access Strategy

Introduction

1.1 This Technical Note (TN) has been prepared following pre-application discussions with Milton Keynes Council (MKC), in relation to the proposed access strategy for the Bloor Homes' landholding at Willen Road, Newport Pagnell.

1.2 Bloor Homes' landholding is located at the north-western corner of the wider Milton Keynes East Strategic Urban Extension (MKE SUE), to the east of the M1 motorway and south of Newport Pagnell. The landholding is proposed to accommodate up to circa 800 residential dwellings, a local centre and primary school.

Background

1.3 Initial discussions have been undertaken with MKC Highways Officers' regarding the proposed access options for the Development Site. MKC Officers' agreed that access to the Development Site in the form of two new vehicular access junctions (Northern and Southern Access) off Willen Road would be acceptable in principle.

1.4 The proposed access strategy for the development is for the two new vehicular accesses to be signal-controlled junctions with Willen Road. This TN provides details of the proposed signal-controlled access strategy. The Note also sets out the justification to support the proposed access strategy, in terms of an assessment of an alternative access option; more specifically roundabout junction arrangements, at the request of MKC Officers'. Details of the pedestrian and cycle access proposals and improvements to the site are also included.

1.5 In the first instance, it is important to understand the proposed access strategy in the context of the wider future highway improvements proposed as part of the MKE SUE and local committed developments, particularly the Employment Site opposite the Development Site. This is because the future highway improvements have influenced the proposed access strategy for the Development Site.

1.6 It is fundamental the development is fully integrated and well connected within the surrounding area, in order to maximise access, travel by sustainable modes and in a safe manner. The proposed layout of the Development Site has also been carefully designed to include connections with the proposed Milton Keynes East Grid Road (as part of the MKE SUE), should this be implemented in the future.

1.7 A summary of the future highway improvements proposed as part of the local committed schemes and MKE SUE that are relevant to the Development Site proposals are provided below.

Future Highway Improvements

Committed Schemes

1.8 The transport improvements proposed as part of the Employment Site, relevant to this development site are as follows:

Caldecote Farm Employment Site (APP REF: 19/02402/FUL)

- new signal-controlled crossroads junction on Willen Road (opposite the Development Site) to include crossings to facilitate pedestrians/cyclists crossing;
- a new 3-metre Redway (footway / cycle) on Willen Road (western side, crossing to the eastern side to the north of the proposed Northern Access junction);
- Significant enlargement and upgrades to the Marsh End Roundabout to include:
  - the introduction of traffic signal control on all four arms;
  - provision of at grade crossings on the A442 (E) to facilitate pedestrians / cyclists crossing;
  - widening on the A442 eastbound and westbound approaches to increase the length of the three-lane sections; and
  - significant widening of the Willen Road (S) arm to provide two full lanes northbound and southbound between the Marsh End Roundabout and the proposed site access junction;
- improvements to existing public transport services including new stops on Willen Road, with raised kerbs, shelters with seating and real-time information display screens. These improvements will encourage bus travel by improving the overall passenger experience using these bus stops; and
- a financial contribution (£650,000) to improve the frequency of the existing Willen Road bus services. This financial contribution will enhance bus service C10, which runs along Willen Road to a service every 30 minutes from Monday to Friday, from 06:30 to 19:00 (currently runs hourly from Monday to Friday).

MKE SUE

1.9 The Development Site has been designed to take account of the MKE SUE by allowing for a future connection with the proposed new Milton Keynes East Grid Road / Mass Rapid Transit route (which runs along the south east boundary of the Site), should this be implemented.

Proposed Access Strategy Bloor Homes' Development Site
Vehicle Access

1.10 Given the location and extent of the Development Site, being bounded by the A422 to the north, agricultural land and the A509 to the east and south and M1 to the south, vehicle access is proposed from Willen Road. It is considered that two new vehicle accesses are required for the proposed development and both are proposed to be located on Willen Road in the form of: i) Northern Access and ii) Southern Access. Further specific details are provided below. The pedestrian and cycle access proposals are also set out.

Proposed Northern Access

1.11 The proposed Northern Access is to be located directly opposite the proposed signal-controlled access to the Employment Site; as such the Northern Access has been designed to fully integrate with the Employment Site access, in the form of a new signal-controlled crossroads junction. The signal-controlled junction arrangement will include at-grade crossing facilities to facilitate pedestrian/cycle movements. It should be noted that the existing access to Caldecote Farm will remain as a standalone access.

1.12 As part of the signal design for the Employment Site, a Traffic Regulation Order (TRO) will be made to reduce the speed limit on Willen Road between Tongwell Roundabout to the south to the entrance to Newport Pagnell (Marsh End Road) to the north, from national (60mph) to 40mph.

1.13 **Figure 1** (see **Appendix 1**) shows the proposed junction layout.

Proposed Southern Access

1.14 The proposed Southern Access is located approximately 190 metres to the south of the Northern Access on the eastern side of Willen Road. This will be in the form of a signal-controlled junction and will include at-grade crossing facilities to facilitate pedestrian/cycle movements.

1.15 Willen Road will be widened to a two-lane dual carriageway in the vicinity of the Southern Access and will then taper down to a two-way single carriageway on the approach to the M1 overbridge, in accordance with the aspirations of the MKE SPD to upgrade Willen Road to a Grid Road. The Southern Access will operate as a MKE SUE primary distributor road providing a future connection with the proposed Grid Road / Mass Rapid Transit / Redway route identified within the wider MKE SUE area.

1.16 The proposed signalised access arrangements are shown in **Figure 1 (Appendix 1)**.

Pedestrian and Cycle Access

1.17 The main pedestrian and cycle access points to the site are proposed as follows:

- Willen Road Northern Access;
- Willen Road Southern Access;
- North-western corner of the site to connect to the Redway and Toucan crossing at Marsh End Roundabout (both of which will be delivered as part of the Employment Site); and
- Northern side of the site via a new pedestrian / cycle bridge over the A422 Monks Way.

1.18 Further pedestrian access will be provided for along the eastern side of the site to enable future connections to the wider MKE SUE to be accommodated to ensure maximum permeability between the sites.

1.19 Bloor Homes' proposals include:

- the provision of pedestrian / cycle crossings on the proposed signal-controlled junctions for the Northern and Southern Accesses will provide a dedicated, safe and convenient environment for pedestrians and cyclists to cross;
- a new three-metre-wide shared pedestrian / cycle Redway route along the eastern side of Willen Road between Tongwell Roundabout and the proposed northern access to the site, connecting to the provision to be made by the Employment Site to the north this site access to the Marsh End Roundabout and beyond, into Newport Pagnell. The Redway will connect to existing facilities at the Tongwell Roundabout to the south (part of Super Redway Route H40). This will also connect with the Redway proposed on the western side of Willen Road as part of the Employment Site, via the proposed signal-controlled junction; and
- a new footbridge to accommodate pedestrian and cycle movements over the A422, potentially along the route of Newport Pagnell Footpaths 007 and 014. This will improve pedestrian and cycle connections to the north towards Newport Pagnell.

1.20 A copy of the preliminary signalled controlled access arrangements describe above is provided at **Appendix 1**.

Priority Roundabout Junctions

1.21 Following discussions with MKC, it was agreed to consider the introduction of priority roundabout junctions (instead of signal-controlled crossroad junctions) at the proposed Northern and Southern Accesses. A copy of the preliminary priority roundabout access arrangements described above is provided at **Appendix 2**.

1.22 The northern roundabout would comprise four arms and would provide access to Employment Site via the western arm and the eastern arm would serve the northern element of the Bloor Homes' land. The southern roundabout would be in the form of a three-arm roundabout with the eastern arm providing access to the southern section of the Bloor Homes' land.

1.23 The roundabouts have been designed in accordance with the Design Manual for Roads and Bridges CD116 "Geometric Design of Roundabouts" in terms of geometry including vehicle entry path radius (deflection).

Signal-Controlled Junctions vs Priority Roundabouts

1.24 This section provides an appraisal of the two different options of signal-controlled junctions and priority roundabouts in detail in order to determine the preferred access arrangements for the Bloor Homes' Development. **Table 1.1** summarises the benefits and disbenefits of signal-controlled junctions and priority roundabout junctions (in relation to the two access locations).

1.25 **Table 1.1** illustrates that signal controlled junctions and priority roundabouts clearly provide a number of benefits and disbenefits depending on various factors such as location, traffic levels, types and numbers of road users, accident safety etc.

1.26 The proposed signal-controlled access arrangements for the Bloor Homes' development integrate well with the proposed access arrangements for the Employment Site and the proposed improvements to Marsh End Roundabout.

1.27 The proposals also provide a very efficient use of available road space and facilitate the safe access and movement for all road users. In particular, the proposed pedestrian / cycle crossings on all arms of the signal-controlled Northern and Southern Access junctions will provide a dedicated, safe and convenient environment for pedestrians and cyclists to cross (as the traffic streams are stopped by red signals). They would also provide effective links between the proposed eastern and western Redway Routes.

1.28 The proposed traffic signal access strategy offers a number of opportunities to minimise congestion and maximise road capacity within the local area, whilst offering benefits to other road users such as bus services. The method of control can be altered to reflect traffic conditions or a designated route priority, by changing signal timings cycle by cycle to adapt to prevailing traffic conditions. This can also allow priority for buses in the future if required.

1.29 The signal-controlled junctions could be linked to provide area control of traffic, especially with the proposed signalling of Marsh End Roundabout. The separate staging of vehicle movements also reduces conflict between difference vehicle movements.

1.30 The alternative priority roundabout access strategy would require significantly more land take compared to a signal design and does not fully integrate with the proposals for the Employment Site. The roundabouts would also not safely accommodate the needs of vulnerable road users (pedestrians, cyclists and powered two wheelers) as effectively as a signal-controlled arrangement. It is also difficult to implement any form of traffic control.

Conclusions

1.31 The proposed signal-controlled access arrangements provide a very efficient use of available road space whilst facilitating the safe access and movement for all road users. The signal-controlled access strategy also fully integrates with the proposed access arrangements to serve the Employment Site and the proposed improvements along Willen Road and at Marsh End Roundabout, providing continuity in the road infrastructure.

1.32 The alternative priority roundabout access strategy would provide suitable vehicle access but does not effectively accommodate pedestrian and cyclists (vulnerable road users). In addition, the priority roundabout design requires significantly more land take compared to a signal design and does not fully integrate with the proposals for the Employment Site opposite, nor provide continuity in the road infrastructure.

Tables

Table 1.1 – Appraisal of Signal-Controlled and Priority Roundabout Junctions

TABLE 1.1: APPRAISAL OF SIGNAL-CONTROLLED JUNCTIONS AND PRIORITY ROUNDABOUTS

Item	Signal-Controlled Junctions	Priority Roundabouts
Location	Signal-controlled junctions are most common in busy urban areas or along roads with high traffic flows and where there are pedestrian/cycle movements.	Milton Keynes is served by a grid road system that run between districts. The girds are predominately connected by priority roundabout junctions, with few signal junctions. The provision of priority roundabout junctions to serve the Bloor Homes' land and Employment Site would conform with the historic junction continuity of the city. Large roundabout designs are normally located in more rural settings or areas where vehicles, pedestrian and cycle movements are segregated.
Traffic/Road Capacity	Signal-controlled junctions create queues due to the Stop signal, but when working within capacity (PRC < 0.9), such queues are minimal. .	Priority roundabouts provide free flowing conditions when working well within their design capacities (RFC < 0.85).
Delays to Road Users	Signal-controlled junctions provide a dedicated time for all road users. Whilst signals can potentially increase delays for traffic, they benefit pedestrians and cyclists, particularly on busy stretches of road where it is difficult to cross.	Although priority roundabout junctions provide free-flowing conditions for traffic, pedestrians are not well catered for unless signal-controlled crossing are provided; and for cyclists the circulatory areas can be intimidating.
Flexible/Area Traffic Control	The method of control can be altered to reflect traffic conditions or a designated route priority, through the use of MOVA or SCOOT, for example. MOVA control (Microprocessor Optimisation Vehicle Actuation) generates its own signal timings cycle by cycle varying continuously to adapt to prevailing traffic condition. Signal-controlled junctions can also be linked to provide area control of traffic, with potential benefits for reducing congestion and delays.	A priority roundabout is not able to adjust to variations in traffic patterns or future changes in traffic. For roundabouts to work effectively, the traffic flows need to be relatively balanced. A significant movement in one direction can significantly reduce the capacity of the next arm to enter the roundabout. Traffic signals can adjust to prevailing traffic conditions
Vulnerable Road Users	Signal-controlled junctions provide a dedicated, safe and convenient environment for pedestrians and cyclists to cross, as the traffic streams are stopped by red signals.	Priority roundabouts can be a significant barrier to pedestrian / cycle movements. Priority roundabout designs make minimal provision for pedestrians requiring them to cross wide entry or exit arms. Where formal crossings are installed, whether Zebra or signal controlled crossings, they are often by necessity placed well away from pedestrian desire line.
Public Transport	Signal-controlled arrangements can allow priority for buses in the future if required.	Buses cannot be given priority at give-way roundabouts as they are immersed within the general traffic.

TABLE 1.1: APPRAISAL OF SIGNAL-CONTROLLED JUNCTIONS AND PRIORITY ROUNDABOUTS

Item	Signal-Controlled Junctions	Priority Roundabouts
Conflict/ Collision Risks	The separate staging of vehicle movements at signal-controlled junctions reduces congestion / conflict between difference vehicle movements, within the available road space.	Priority roundabout junctions can improve accident safety in some locations, but they can also have a relatively poor collision record for cyclists and Powered Two Wheelers (PTWs). The greatest risk to riders is being hit by vehicles entering the circulatory carriageway or failing to judge the speed of vehicles when entering the roundabout.
Land Area Required	Signal-controlled junctions can provide an efficient use of road space compared to roundabout solutions.	Providing adequate deflection is important in reducing speed for motor vehicles, and normal practise is for the geometry to force vehicles to turn through a curve of less than 100 metres in radius on entry (to achieve an entry speed no more than 30mph). The need for deflection results in large roundabouts that have a large land requirement and their circulatory geometry does not always site comfortably in urban areas in terms of place making.
Costs	Signal-controlled junction arrangements can be complex and expensive to install, update and maintain.	Potentially lower overall costs as limited ongoing maintenance costs.
Environmental Effects	Potentially increases pollution, noise and fuel consumption, from cars waiting at traffic signals.	When operating within capacity, less air pollution, noise, fuel consumption, from cars not having to wait at traffic signals.

Appendices

Appendix 1 – Signal-Controlled Access Arrangements

Figure 1: Proposed Signal-Controlled Access Arrangements

Northern Access **Southern Access**

Appendix 2 – Preliminary Alternative Priority Roundabout Access Layout

Figure 2: Preliminary Priority Roundabout Access Layout
Northern and Southern Accesses

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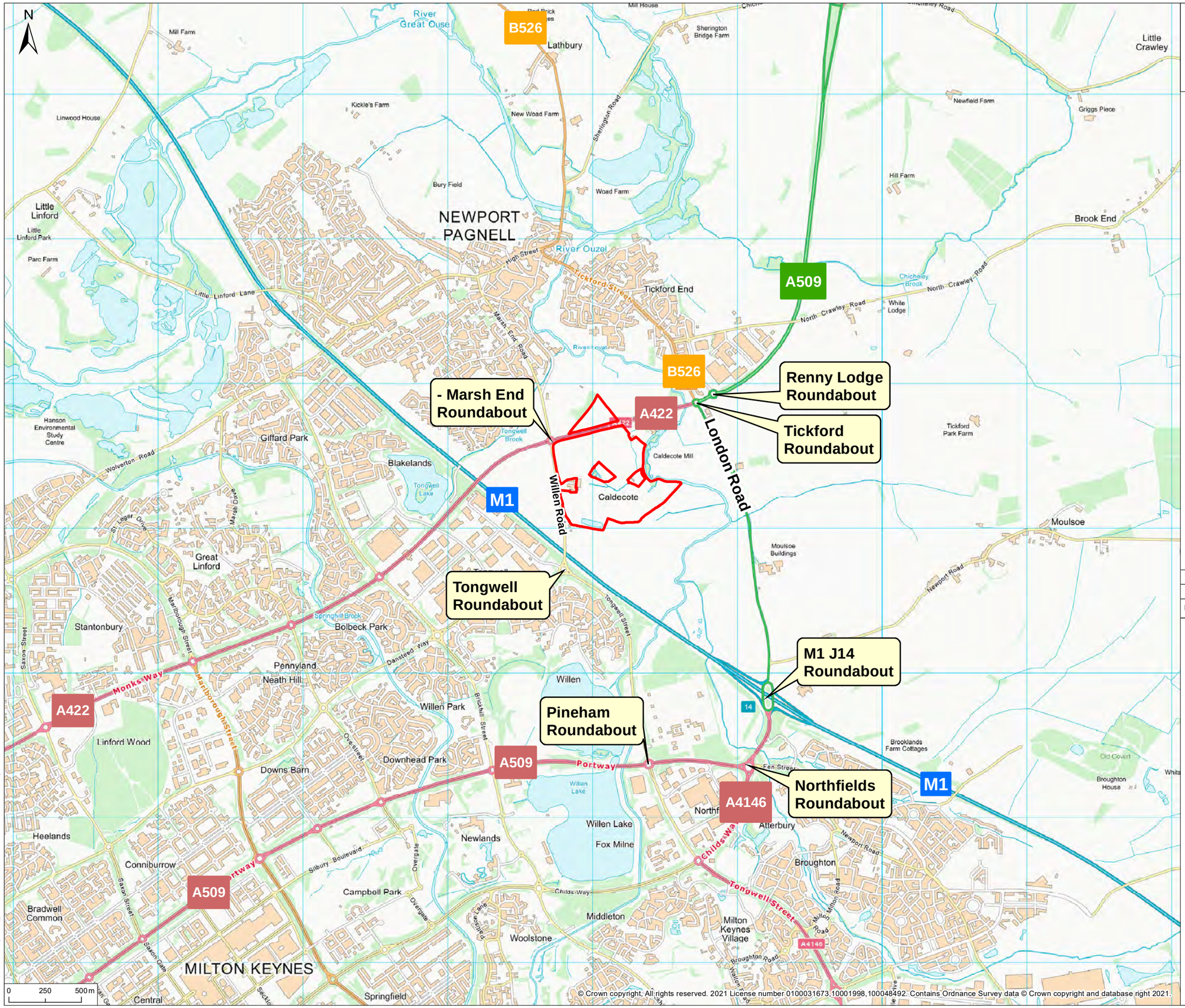
Appendix 4 – Highway Network Plan Wider Context



Notes
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Legend

Site boundary

Rev	Description	By	CB	Date

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Client: Bloor Homes Ltd'

Project: Newport Pagnell

Title: Existing Highway Context Plan

Status	Drawn By	PM/Checked By
ISSUE	RD	KD
Project Number	**Scale @ A3**	**Date Created**
JNY10094	1:25,000	OCT 2021

Figure Number: Rev -

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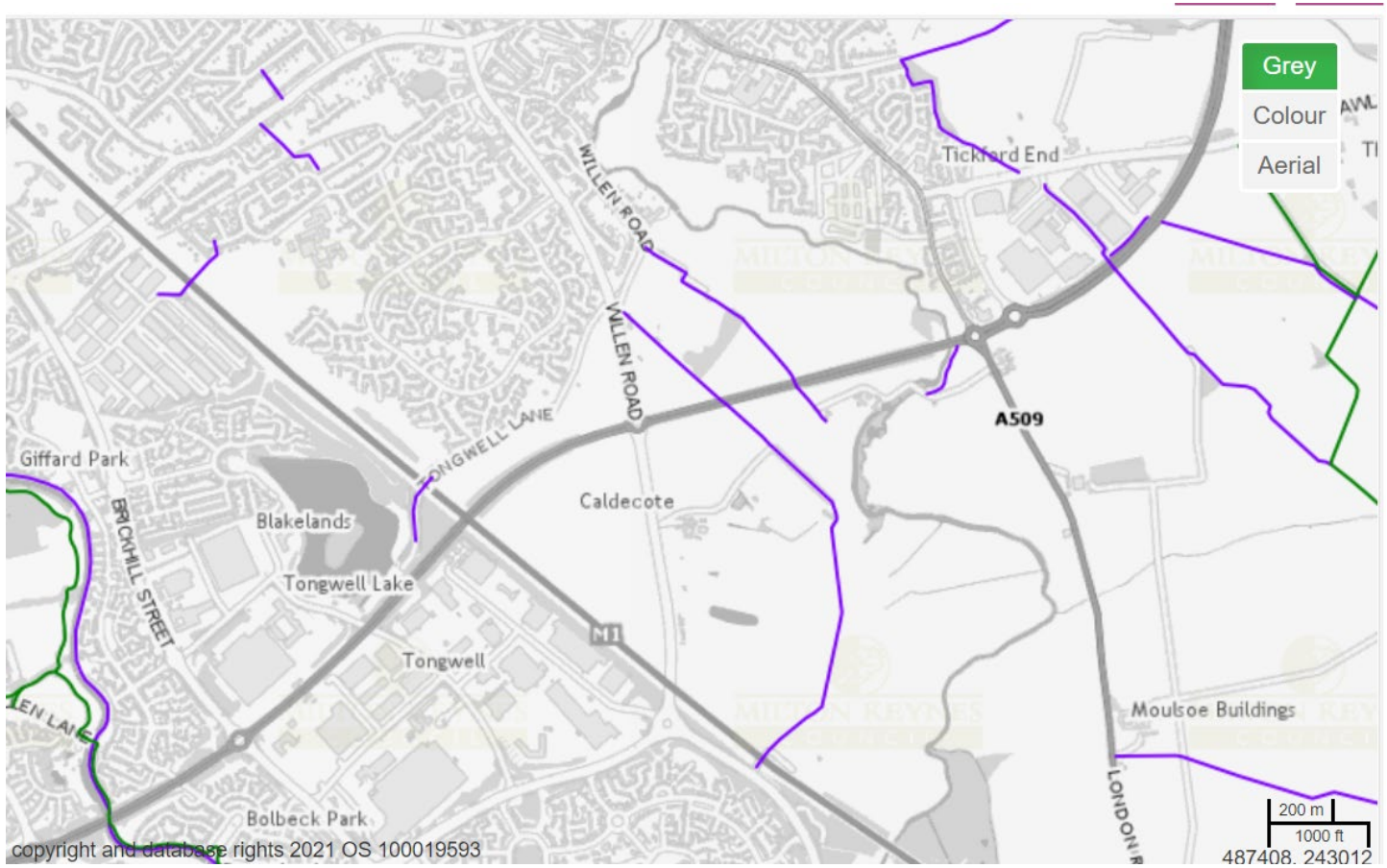
Appendix 5 – Existing Footpath Plan

Public Rights Of Way Map (Source: www.milton-keynes.gov.uk)



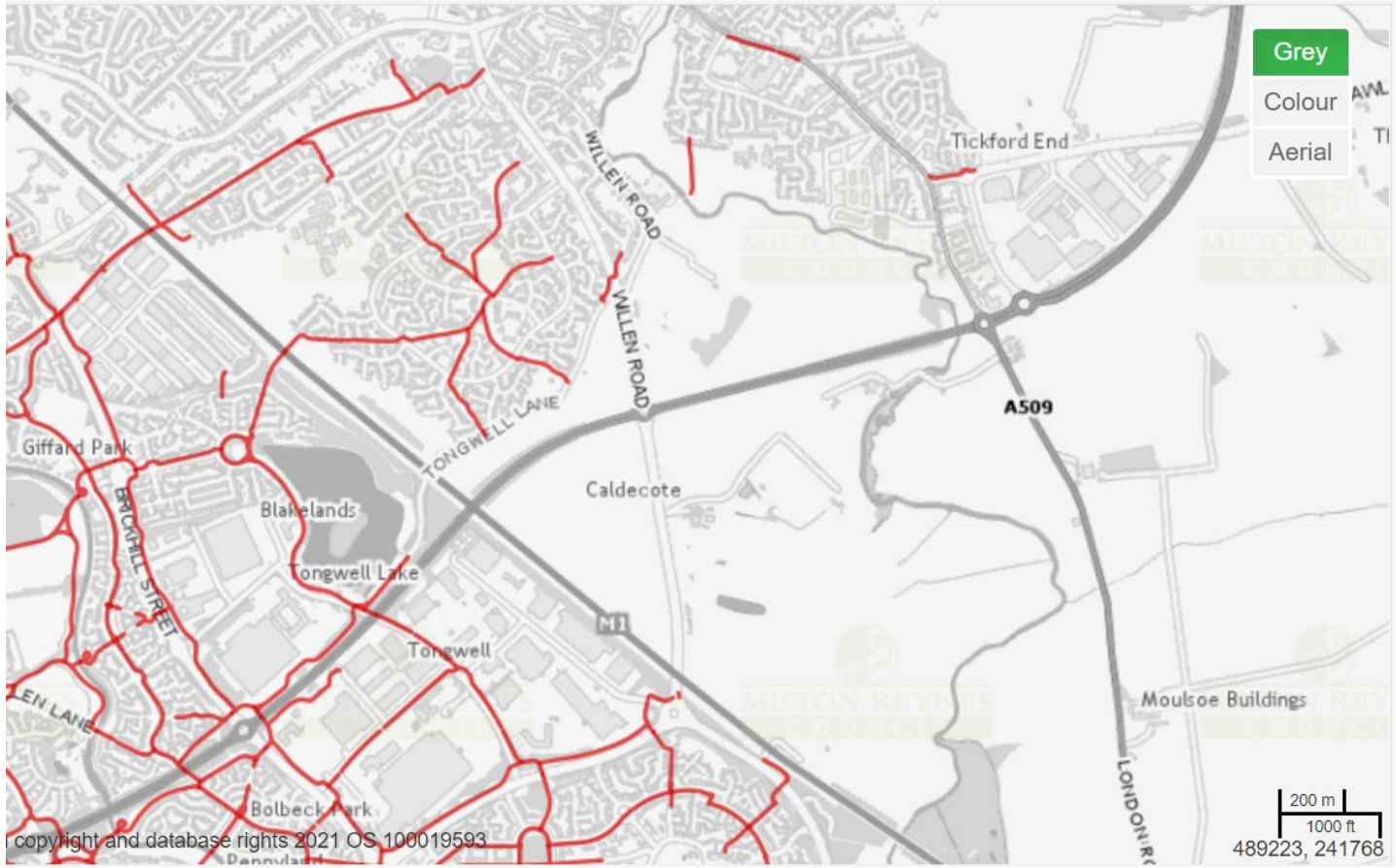
KEY:

Public Footpath

Public Bridleway

Byway Open to Tra

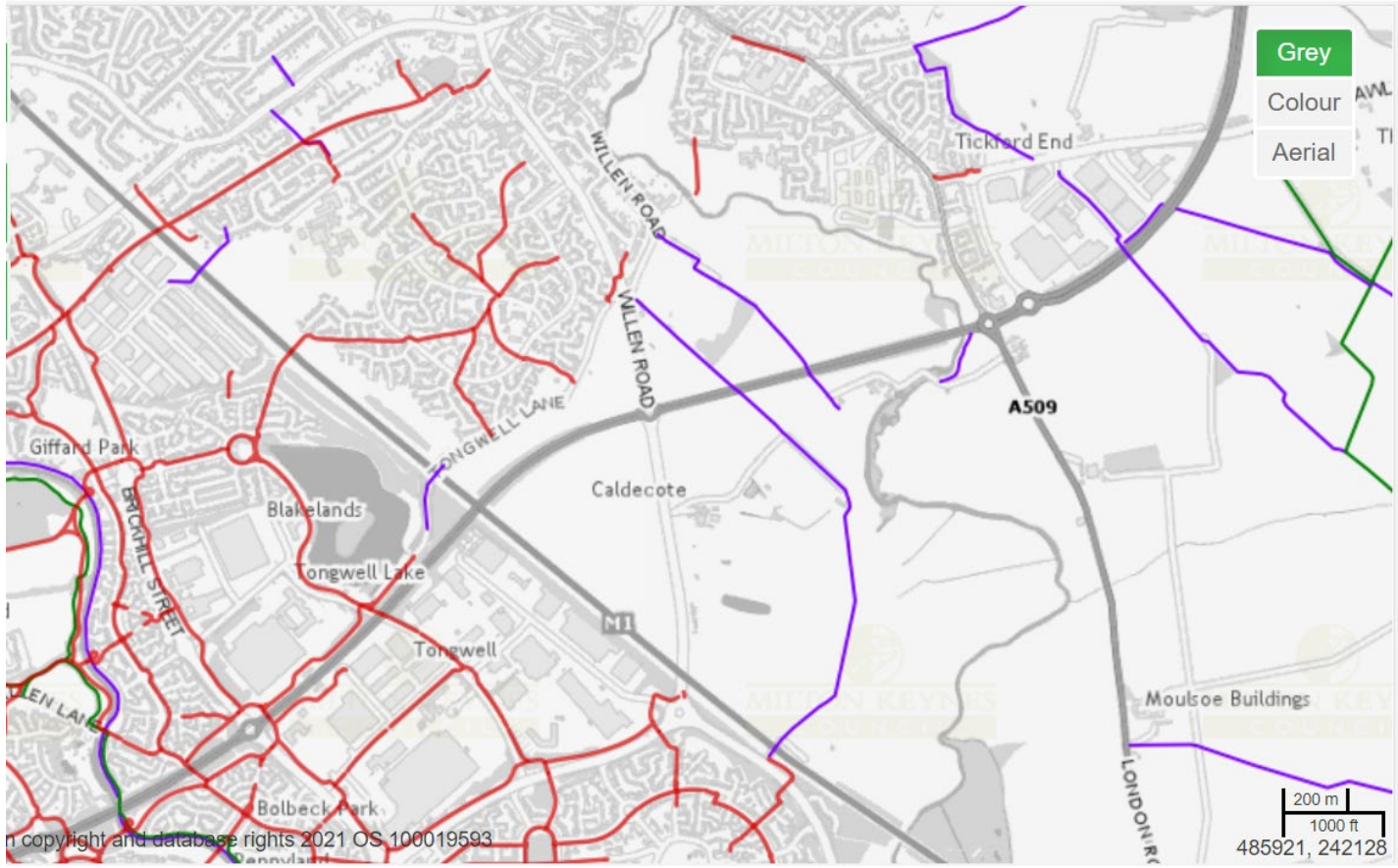
Redways Map (Source: www.milton-keynes.gov.uk)



KEY:

Redways

Public Rights of Way and Redways Map (Source: www.milton-keynes.gov.uk)



KEY:

Public Footpath

Public Bridleway

Byway Open to Tra

Redways

Appendix 6 - MKC Cycle Map

MK Cycling Map

A map of the **Redways** and other **cycle** routes in **Milton Keynes**

www.getcyclingmk.org

get cycling

get smarter travel in Milton Keynes

milton keynes council

Index of areas in Milton Keynes

The Redway Code – Respect, Protect, Enjoy.

The Redways are an important part of Milton Keynes. They are shared-use routes for people on foot or on cycles. The traffic-free network is popular for leisure, for commuting and for staying active. Redways may be used by anyone cycling and walking including people with pushchairs or prams and those in wheelchairs (including powered wheelchairs / mobility scooters). To enjoy them, please follow these common sense guidelines.

Respect other people

- Be polite and courteous. Consider the needs of others.
- Cycle on the left, walk on the right. Don't change direction suddenly and signal clearly while cycling.
- Take care when passing other people, allow plenty of room and use a polite audible method to signal your approach.
- Slow down at bends and all junctions and be prepared to stop when necessary.
- Only cycle or walk two abreast. Don't obstruct the Redway or stand in groups; allow others to pass quickly and easily.
- Don't use your mobile phone. It's safer to be aware of your surroundings especially of people approaching from behind.
- If you need to cross a Redway in a vehicle e.g. to reach a private driveway, drivers should give way to pedestrians and cyclists.

Protect the environment

- Take your litter home.
- Keep dogs under strict control, preferably on a short lead.
- Always clean up after your dog and get rid of mess responsibly.
- Report problems on the Redways including glass, potholes, lighting and vegetation to MK Highways via our website www.getcyclingmk.org

Enjoy the outdoors

- Follow these guidelines and the Highway Code.
- Be responsible for your own safety and others in your care.
- Plan your route in advance.
- Horse-riding is permitted on Redways which are part of the bridleway network.

Helpful advice: Young people and others may want to consider wearing a helmet while cycling. At night, wearing reflective, hi-viz or light coloured clothing will help you be seen.

Redways and the law

- Electric cycles which meet the EAPC Regulations are permitted to use Redways.
- As Public Highway, all legal requirements and the Highway Code are applicable to the Redways: cycles should be road worthy and able to stop in an emergency; cycle lights are required at night.
- All motor-powered vehicles including mopeds, mini-motos and motorcycles are prohibited from using Redways with the exception of authorised vehicles e.g. emergency vehicles and maintenance vehicles.
- Away from the Redways, pavements and footways are for pedestrians only. **Cycling on the pavement is an offence which carries a fine of £500.**